Managing for Quality in Higher Education

A Systems Perspective

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MANAGING FOR QUALITY IN HIGHER EDUCATION

A SYSTEMS PERSPECTIVE, 2E

Managing For Quality In Higher Education: A Systems Perspective, 2E
2nd edition

ISBN 978-87-403-1887-6
Peer review by Lawrence Downing, D.Min

CONTENTS

DEDICATION

We dedicate this book to those students on Earth or in Space who commit their lives to the Quality Sciences which will be the source of improvement for humankind wherever their residence.

Ben A. Maguad
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PART I: INTRODUCTION AND HISTORICAL CONTEXT

The world of higher education is undergoing profound and rapid changes. These changes compel educational systems to respond and adjust to ensure that the quality of life in these communities is maintained. These changes emanate from a number of factors among which are explosive growth in knowledge and information, shift towards more information-based services, move towards more global interdependence, greater participation in decision making, and call for greater educational accountability and transparency.

Academic and administrative challenges confronting institutions of higher education are real. In the past, the standard response has been to cut non-basic services and lay off personnel. Consequently, administrators seemed to have become experts in providing quick fixes to problems that don't seem to go away. Chapter 1 explains why managing for quality is vital in higher education and why current responses to challenges may not be adequate to meet the needs of educational institutions in a rapidly changing world. A new model for quality improvement with proven success is needed that examines each and every process and promotes comprehensive, continued, and permanent reform. Chapter 2 examines the origins of the quality improvement movement, its development, and future trends. The quest for quality has always been a part of every human endeavor since the beginning of civilization. It has provided a safeguard against anything that threatens human health and safety and the environment.

1 WHY QUALITY FOR HIGHER EDUCATION?

The world in which institutions of higher learning operate is undergoing dramatic changes. These changes challenge to the very core the social, cultural, economic, political, technological and other systems that are at work in these communities. Consequently, educational systems have had to respond to these changes to ensure that the quality of life in each community is maintained and developed. A number of these changes are described below.

One is the rapid growth in knowledge and information bolstered by advances in data storage and communication. Another is the growing shift from manufacturing towards more information-based service industries which require thinking, communication and problem-solving skills. Still another one is the growing trend towards a more global, transnational economy and towards global interdependence. There is also an observable shift towards greater participation in decision making and equity among ethnic groups, sexes, classes and age groups. Lastly, there has been a growing demand for greater accountability and transparency in education.

Many colleges and universities today continue to face common challenges such as sky-rocketing operating costs, spiraling tuition fees, declining student demand, hampering regulations and bureaucracies, pressing calls for productivity and efficiency and public demand for accountability and responsibility. In the past, the standard response has been to contain cost by means of traditional and time-worn methods. Institutions of higher education have resorted to quick-fix solutions which typically included cutting non-basic services, laying off employees, and curtailing education and training of personnel. By doing these repeatedly, administrators have become adept at managing crises, in dealing with quick fixes and in providing simple, short-term solutions to problems which do not seem to go away.[1] Amidst all the retrenchments, hiring and salary freezes, and other cost-cutting measures, college and university administrators have wondered if there is a better way to manage higher education.

The problems faced by higher education are diverse, deep-rooted, and as much social and political. They are for the most part school system problems. Educational failures can be attributed in part to the way schools are structured and managed. Unfortunately, many schools today operate in much the same way as they did decades ago. The schools themselves, however, are not solely to blame. Fundamental causes of poor performance could also be traced to institutions that have traditionally governed these schools.

Educational systems and the education of people are vital to the progress of every society. Educated people, not machines, are the driving force behind a nation's economic growth and development. Education is important because living standards, economic growth, and competitiveness are directly related to the state of a nation's schools. The educational environment, however, is constantly in a state of flux. In such environment, competition for both students and funds will continue to increase at a time when more results are required with fewer resources. In the wake of these rapid changes, colleges and universities today cannot afford to maintain their current course. No matter how good these institutions are now, or how good they have been, they need to be even better in the future if they are to meet the needs of their stakeholders in a rapidly changing world. Institutions of higher learning need to act proactively and initiate positive, quality-focused and learner-centered programs. To achieve this end, they need an improvement model that examines each and every process in order to promote continued and permanent reform.

The reformation of higher education needs a model for quality improvement with proven success similar to one tested and practiced in business and industry but adapted to the unique needs of academia. Educational institutions need to pursue quality consciously by systematic means. Such reformation requires a long-term comprehensive approach to quality improvement instead of mere piece-meal approaches to deal with problems. These are the conditions to which the principles and tools of quality are readily applicable.

There are several reasons the application of quality management theory to higher education can be justified. First, quality management in higher education is still an area of warm research activity. Quality remains a significant field for research in academia. Second, quality management is not only compatible with educational reforms but actually builds the case for them.[2] It supports educators' own change goals, responds to barriers like those found in schools, and helps schools learn. Third, quality management is a paradigm capable of integrating several diverse higher education reform movements (e.g., accreditation or input-based approach and outcomes assessment approach) so that these attempts at reform can make their optimal contributions.[3]

Quality improvement, defined as continuous improvement of processes is, on one hand, still new to higher education and, on the other, a deeply ingrained tradition. In the early part of the last century, institutions of higher education determined that quality can be assured by controlling process inputs like the credentials of faculty, the ability of incoming students, library holdings, and individual teacher assessment of student performance. This reliance on process inputs, however, has not been adequate to assure quality. The same was true with the movement that emerged during the latter part of that century in response to declining standards in schools. Tests of one kind or another have been administered to identify deficient students and to prevent them from being passed through. Educational institutions went beyond reporting on resources, structure, faculty credentials, and library holdings to assess the educational results in terms of student attainments. Although this outcomes-based approach had its merits, it has not adequately assessed results of processes to determine if they were properly orchestrated. The quality management approach takes care of this gap by taking a holistic approach to assuring quality of inputs, processes, and outcomes.

2 THE ORIGINS OF THE QUALITY MOVEMENT

The importance of history cannot be understated. In *A History of Managing for Quality*, Juran wrote:[4]

> *History enables us to retrace the past, to understand the significant events and the convergence of forces that stimulated those events. Study of history helps us to discover the trends and directions of past events and thereby to judge what may lie ahead. And of course, well-written history makes fascinating reading.*

In recent years, the subject of managing for quality has gained prominence in the literature and in a growing number of manufacturing and service organizations. Quality has become a very powerful tool in international competition. Organizations as well as societies have come to realize that the pursuit of quality provides a safeguard against anything that threatens human health and safety, even the environment.

The subject of quality has had a long history. Its origin can be traced back to the beginning of civilization. Since "quality is a timeless concept, so the origins of the human approach to managing for quality are hidden in the mists of the ancient past".[5] While the quest for quality has always been part of every human endeavor, only in recent decades has the subject of defining and managing for quality become a central focus of study. In view of this, the history of the origins of the quality movement merits careful study and attention.

QUEST FOR QUALITY IN ANCIENT SOCIETIES

Ever since civilization began, human beings have always encountered problems pertaining to quality. Ancient food-gatherers had to learn which foods were edible and which ones were not. Hunters had to discover which tools would best serve their specific needs. During this era, quality was measured to some extent by how long these hunters and food-gatherers stayed alive.[6] The better the tools, the better their chances were of survival. Each primitive food-gatherer or hunter was able to define quality somewhat easily because he was supplier, producer, and customer of his own work.[7]

THE FAMILY UNIT

In the ancient past, the family served as the basic organizational unit of society. Primitive families had to provide largely for their own basic needs. They practiced division of labor to achieve production efficiency. Since the purpose of production was to provide mainly for family needs, the production processes, from design to actual use, were carried out by the same family members. Family members took all the initiative to check whether the products satisfied their intended uses in terms of satisfying their basic needs of food, shelter, and clothing. In essence, they determined what a "quality" product was. The major constraining factor in achieving quality during this time in history was the backward state of technology.

THE VILLAGE MARKETPLACE

As the number of families grew, people formed villages to provide for security and other social needs. The establishment of the village as a collective human organizational unit further enhanced division of labor and specialization among members of the village community. Craftsmen of all sorts emerged, output increased and inter-village trade flourished. In performing tasks over and over again, craftsmen became better and better at what they did. They became very familiar with the production process, the raw materials used, the equipment employed, and the finished product.

The growth of trade among members of the village community facilitated another step in defining quality. The village residents who were the users of the product now decided what a "quality" product was, not just the craftsmen or merchants. Producers and consumers met face to face with the goods between them. Due to the nature of the products sold, product quality could still be judged by the use of unaided human senses.

In the village marketplace, both the producer and the consumer were engaged in the inspection process. Producers strived to ensure that any defects were discovered during the production process or before the products reached the final customers. However, due to unavailability of sophisticated inspection equipment, some defective products were able to slip through. Buyers therefore needed to be vigilant by inspecting the products prior to purchase. While sellers were responsible for supplying the goods, buyers were responsible for supplying the quality assurance. This practice became widely known as *caveat emptor* or "let the buyer beware". In the exchange process, feedback from customers was prompt so that merchants were able to make correction or improvement to their products. As an additional impetus to maintaining high quality, village residents subjected both producers and consumers to close scrutiny and character evaluation. For the village craftsman, the stakes were especially high. His status and occupation were closely tied to his reputation as an able and honest member of the village community.

QUEST FOR QUALITY IN THE PRE-INDUSTRIAL ERA

With the expansion of villages into towns and cities and the widening of the scope of regional trade, it became difficult for the producer and user to meet face-to-face in the marketplace. Between them emerged a host of suppliers, processors, and marketers. As a result, some new forms of quality assurance had to be invented to take the place of quality protections, which were traditionally inherent in the village marketplace. Examples of such forms were quality warranties and quality specifications.

Quality warranties were originally given by the producer to the buyer to provide the latter with quality assurance before the purchase and also relief or compensation in the event that the commodity did not live up to the buyer's expectation. Later during the medieval ages, the guilds took over this function. Over the years, quality warranties had become so widely used in all forms of trade and commerce that many governments legislated standards regulating their use in order to protect the buyers.

Quality specifications, like warranties, were of ancient origin.[8] The first type of specifications focused on defining products and processes but was later extended to the type of materials used in producing the commodity. Due to the differences in the measures used by the sellers and buyers, conflicts sometimes arose. To resolve these conflicts, standardized measures of length, volume, and time were invented. Since then, various instruments have evolved with ever-increasing precision.

THE ROLE OF THE CRAFTSMEN

Craftsmen, tradesmen or artisans were those who acquired special skills in the performance of a sequence of tasks. Their ability to produce goods of high quality can be attributed to a number of factors.[9] The first factor was the training they received during the apprenticeship period. They were usually indentured at a young age for the purpose of learning a trade. As apprentices, they served their masters for a specified number of years in return for knowledge and skills learned. The second factor was the experience they acquired through many cycles of producing products. The more production cycles they went through, the more intimately familiar they became with the production process and the more skillful they became at performing a task or a group of tasks. The third factor was that while doing a sequence of tasks, the tradesman became repeatedly his own customer. The best way for him to discover quality problems was to use the product himself. It was easier for the tradesman to trace the cause or causes of the problems and correct them when he performed all the tasks required in a production sequence rather than when different people performed each task.

THE ROLE OF THE GUILDS

Guilds were prevalent during the Middle Ages until their influence was diminished by the onset of the Industrial Revolution. They were craft and trade organizations, which used their monopolistic powers, derived from charters provided by the prevailing authorities, to provide livelihood and security for members. The functions of guilds were extensive, from establishing rules governing apprenticeship and promotion to the grade of master to providing extensive social services to members and to playing an active role in the political affairs of the state.

Guilds played a very important role in managing and controlling for quality. As part of quality planning, the guilds established detailed specifications for input materials, production processes, finished products, and methods of inspection and test.[10] To assure that craftsmen followed these specifications, the guilds established inspection and audit procedures, invented the mark or the seal to provide quality assurance to finished products, forbade the sale of poor-quality goods, established and enforced prices and terms of sale, and maintained equality of opportunity among members.

As an overriding goal, guilds sought to maintain solidarity and equality among its members by promoting only honest competition among them. No member was allowed to take advantage of other members. Unfortunately, quality improvement through product and process innovation was not considered to be honest competition by the guilds. This strong focus on guild solidarity stifled quality improvement and made the guilds lag behind other cities that did not have this restriction and were therefore free to create better products and processes.

THE ROLE OF THE GOVERNMENT

The functions of government have always included promoting the safety and health of its citizens, improving the state economy, and protecting the consumers against fraud and other forms of exploitation. Ancient laws were particularly harsh in dealing with quality failures. For example, any builder who built a poor-quality house could receive a death penalty if the said house later collapsed and killed the owner.

During the medieval times, quality was considered to be a serious issue. Rickert[11] in 1948 recorded an account of the infamous trial of John Welburgham that took place in 1392.[12]

> *On the eighth of May* [*1392*], … [*five citizens*] *came before the Mayor, sheriffs and aldermen … and showed to them two pieces of cooked fish … rotten and stinking and unwholesome … which they had bought of John Welburgham … at noon on the same day and which the said cook warranted to them to be good ….*
>
> *And hereupon the said John Welburgham was immediately sent for, and being questioned, he said that he did sell … the said fish to be cooked … Wherefore it was awarded that the said John Welburgham should repay to said complainant six pence, … that he should also have the punishment of the pillory for one hour of the day, and that the said fish should then be burned beneath him.*

In the above case, the whole town was involved and the sentencing was swift. John Welburgham was required to compensate his victims and endure public humiliation for the wrong that he committed. The severity of the punishment reflected the medieval obsession with quality. This societal attitude may be explained by an economic condition characterized by scarcity of resources and exorbitant cost of handcrafted goods. One bad purchase, therefore, could represent considerable loss.

With the growth of interstate commerce, government involvement in managing for quality became more pronounced as states competed with one another in many different ways including quality. To gain competitive edge over other states, governments encouraged quality improvement of domestic goods in order to increase exports. They imposed quality controls on exported goods by means of independent inspection and certification as shown by a mark or a seal. A mark was used to identify the producer, provide traceability, provide product information, and provide quality assurance. In the past, this was one way guilds and towns told their buyers, "This product has been independently inspected, and has good quality".[13]

Another area where governments increasingly delved themselves into was consumer protection. They recognized that some domestic trade practices existed where the *caveat emptor* principle did not apply. An example of such practice was related to units of measurement. The states standardized tools for different units of measurement and employed inspectors to ensure that these tools were properly used. From time to time governments intervened in the operation of the economy by imposing price controls and by maintaining a steady flow of raw materials and commodities especially during periods of economic shortage.

QUEST FOR QUALITY IN THE INDUSTRIAL AND POST-INDUSTRIAL ERA

The Industrial Revolution took root in Europe around the mid-1700s. The movement that finally gave birth to the factory system was made possible by the invention of power-driven machinery and the discovery of new sources of mechanical power. Reilly wrote:[14]

> *The machine would change every institution and activity known to humanity. What we preached and believed, our economics, cities and country sides, laws, politics, education, science, medicine, engineering, arts, wars, class structures, and environment, our concepts of progress, and our very dreams – virtually every aspect of human life – was to change drastically and with unprecedented speed.*

The Industrial Revolution ushered in a new era in mass production and distribution, which led to the gradual demise of the craft system. The factory system soon created a setting for significant changes in the way quality would be defined and accepted.

THE ROLE OF THE FACTORY

The factory system enhanced production and distribution in a way that the craft system could not. With the aid of rapidly developing technology, factories were able to mass produce goods to such an extent that drastically reduced the average cost of production. During this period, the principles of division of labor and specialization were widely employed. Whereas in the craft system the craftsman performed all the tasks needed to produce a commodity, in the factory system several or many factory workers performed each one of these tasks. Adam Smith first formally noted this difference between the two systems in his groundbreaking book *The Wealth of Nations*.

By reengineering their manufacturing processes, factories were able to achieve high productivity and lower costs. Mass production at low costs made manufactured goods affordable and available for consumption by the masses. The lower strata of society reaped the benefits of factory production, from blankets, pants, shirts, shoes, cooking utensils, and tools, to a myriad of other products so useful in daily life.[15] The demand increased so dramatically that a new system of distribution had to be put in place. The phenomenal growth in the supply of goods within reasonable reach of the masses greatly enhanced the standard of living of societies and led to the rise of a large middle class. The dramatic rise in consumer spending further boosted production and in turn required a larger capacity to meet the growing demand. To meet this growing demand, inventors and entrepreneurs joined hands to reengineer the manufacturing processes by providing capital and a wide array of supporting equipment and tools designed not only to generate power but also to simplify each task down to a short time cycle.

THE FACTORY SYSTEM AND QUALITY CONTROL

The Industrial Revolution ushered in a new era in the system of quality control. Previously, under the craft system, the craftsman performed all the tasks of a production cycle. He was fully aware that the quality by which each task was performed had an impact on the quality of performance of subsequent tasks. In Juran's words, the craftsman was his own customer over and over again.[16] Under the factory system, however, the workers' main responsibility was "to make it like the sample" instead of satisfying the buyer with whom they had less contact. Factory workers rarely had a chance to receive feedback from buyers or users of the product to improve their work performance. It seemed that the basic economic tenet of the time was simply to boost production and secure larger markets.[17]

Concerning some quality problems caused by mass production during this era, Juran stated:[18]

> *Products that consisted of bits and pieces demanded that those bits and pieces be interchangeable. Then, with the growth of technology and of interstate commerce, there emerged the need for standardization as well. All this required greater precision throughout – machinery, tools, and equipment.*

Reilly[19] pointed out that in the early nineteenth century "quality was not among the foremost of issues" especially when a century earlier, certain commodities were scarce and available only to a privileged few. Suddenly the onset of mass production brought these same commodities within the reach of the masses. The skyrocketing demand for such commodities, which were so useful in daily life, overshadowed any issues of marginal quality. Moreover, workers were so preoccupied with the intolerable working conditions imposed upon them by the capitalists that they had little time to think about quality.

Certain factory quality problems could have been avoided if the planning of the manufacturing processes had been done by supervisors schooled in process and product variation and in sampling techniques designed to assess process stability and capability. Use of these concepts, however, did not become popular until the twentieth century when statistical process control became widely used. In the absence of this knowledge, factories relied mainly on inspectors to catch defective goods during the production process.

QUALITY IMPROVEMENT UNDER THE FACTORY SYSTEM

According to Juran, there are two kinds of quality improvement.[20] The first kind is aimed at increasing customer satisfaction by means of product and process innovation. Product innovation consists of new and improved product features to customers. Process innovation, on the other hand, makes possible the production of these new and improved features. The second kind of quality improvement is aimed at reducing customer dissatisfaction by reducing chronic waste which includes scrap and rework, inspection and test, product failures, and so on.

While quality improvement through product and process innovation gained headway during the Industrial Revolution, reduction of chronic waste did not. This could be attributed to the industrial managers' emphasis on increasing income rather than reducing waste and the guilds' policy of solidarity, which tended to stifle quality improvement.

THE SYSTEM OF SCIENTIFIC MANAGEMENT

Frederick W. Taylor pioneered the system of scientific management in the late nineteenth century. He spent more than twenty-five years of his life exploring ways to improve productivity and create the model factory of the future.[21] An engineer by profession, Taylor developed a series of concepts that laid the foundation for work improvement in the twentieth century.[22] He favored the reduction of each job into its most minute, specialized tasks with each task handled by different individuals.[23] To achieve efficiency and productivity, Taylor separated planning from execution. He placed planning in the hands of the engineers and allowed shop supervisors and workers to handle the implementation.

While Taylor's system was remarkably successful in raising productivity, it seemed to have neglected the human relations factor and product quality. Ignoring the human relations problem, managers addressed the problem of product quality by creating inspection departments to monitor the quality of finished products and to ensure that no defective goods reached the hands of the consumer. Taylor gave formal credibility to the concept of scientific management by the publication of his *Principles of Scientific Management* in 1911. Before his death in 1915, Taylor began to recognize that human motivation, not just engineered improvements, could also increase output.[24] He shifted his focus from individual parts to a systems approach to managing productivity. Unfortunately, with his passing in 1915, the scientific management movement lost any chance of reaching its true potential as the precursor and catalyst for the future total quality management system. Nevertheless, the system of scientific management has laid the foundation for a management system and philosophy that would soon become the guiding force for successful organizations of the future.

QUEST FOR QUALITY IN THE TWENTIETH CENTURY

Juran cited the following major forces that demanded a modern quality revolution:[25] (a) greater complexity and precision of products, (b) threats to human society and health, and to the environment, (c) government regulation of quality, (d) the rise of the consumerism movement, and (e) intensified international competition in quality.

Rapid advances in science and technology brought a host of benefits to human societies. New industries arose to exploit the potential of these new technologies. These technological advances, however, demanded a more complex and sophisticated design and a more precise execution. Consumers welcomed the new and more advanced product features, but they were unfamiliar with the technology and the products themselves. Some of the new products posed potential hazards to safety, health, and the environment. When they failed in the field, consumers encountered difficulty seeking help or compensation from the system due to unclear warranties and/or poor service. In many cases, consumers were unable to protect themselves against the dangers inherent in many products. While individually the consumers could not fight the system, they, collectively, could deal more effectively with these problems. These conditions gave birth to the consumerism movement, which succeeded in persuading the government to legislate laws to protect consumers. Meanwhile, the explosive growth in science and technology and the consolidation of quality concepts espoused by various quality gurus intensified global competition in quality. The Japanese experience was the most spectacular demonstration of this power of competition in quality.

THE PRE-WORLD-WAR-II YEARS

The statistical quality control era effectively began with the publication of G.S. Radford's *The Control of Quality in Manufacturing*.[26] Radford's solution to the quality problem was to install inspection in production systems to assure uniform quality in products going to consumers. It called for the appointment of quality assurance inspectors to "examine, weigh, measure, and test every product prior to its exit from the factory".[27]

THE SHEWHART SYSTEM OF QUALITY CONTROL

Shewhart's pioneering works led to concepts of statistical quality control and laid the foundation for the "germ theory of management".[28] His works on variation and sampling and his teachings on the need for documentation had a monumental influence on the course of industrial history.[29] Shewhart developed the control chart in 1924 to deal with the issue of variation shifting the emphasis from costly correction of problems to prevention of problems and improvement of processes. He also invented the plan-do-check-act (PDCA) cycle, which is a repetitive process of study that may be applied to experiments or system improvements.[30]

THE POST-WORLD-WAR-II YEARS

Prior to World War II, the main focus of quality control was the control of variation based on the work of Shewhart. The Shewhart's system, however, was limited to the technical aspect of total quality. It would take the contributions of Sarasohn, Deming, Juran, Feigenbaum, Ishikawa, and other experts to transform the quality concept from a mere technical system to a broader body of knowledge known as total quality.

QUALITY REVOLUTION IN POST-WAR JAPAN

After the Second World War, Japan faced a daunting task of rebuilding its economy. It turned to the export sector for solutions. The Union of Japanese Scientists and Engineers (JUSE) was formed with a mandate to improve drastically the quality of Japanese exports. Japan turned to the West for help. A number of individuals went to Japan to assist in the transformation of its electronics and telecommunications industries. Among the pioneers were W.S. Magill and Homer Sarasohn. Magill was regarded as the father of statistical control in Japan. Sarasohn, on the other hand, worked with Japanese supervisors and managers to improve the reliability and yields of the electronics industry. In the late 1940s, W. Edwards Deming went to Japan to teach applied statistics in the area of surveys. From 1950 to 1952, he lectured on statistical quality control and quality management. In 1954 and 1958, Joseph M. Juran and Armand Feigenbaum visited Japan respectively to assist Japanese leaders in restructuring their industries. In just a few decades, Japan rose to industrial pre-eminence largely due to its almost fanatical dedication to quality and customer satisfaction.

THE ROLE OF QUALITY LEADERS

Many individuals were instrumental in developing, implementing, and teaching this new approach to managing an organization. Many of the quality pioneers labored painstakingly in getting business and governmental leaders to adopt the new philosophy. Despite a slow start, their teachings gradually became more prominent as the subject of managing for quality moved to center stage.

William Edwards Deming

W. Edwards Deming was the world-class management consultant who helped the Japanese industries learn the new principles of management, which revolutionized their quality and productivity.[31] His approach to quality is summed up in his so-called "Fourteen Points"[32] of management or in his "System of Profound Knowledge".[33] The fourteen points were drawn to tackle head-on the diseases plaguing North American industry.[34] They stress the responsibility of top management to exercise leadership for the comprehensive and constant improvement of the system and the continuous development of people as individuals and teammates.[35] Deming himself stated in 1992 that the fourteen points all had one aim: to make it possible for people to work with joy.[36]

Joseph M. Juran

In 1954, at the invitation of the Union of Japanese Scientists and Engineers (JUSE), Juran went to Japan to assist Japanese leaders to "adapt the quality concepts and tools designed primarily for the factory into a series of concepts that would become the basis for an overall management process".[37] Juran defined quality as "fitness for use as perceived by the customer." His greatest contribution was his ability to take the subject of quality beyond the technical aspects of quality control into the management arena.[38] It was Juran's view that the bulk of responsibility for success or failure in getting quality right lies with management. In order to introduce quality into an organization, one must start at the top. He stressed, however, that "there is no such thing as improvement in general".[39] Quality improvement must take place project by project and in no other way.

Armand Feigenbaum

Feigenbaum promoted the concept that every function within the organization is responsible for quality. Promoting cooperation and harnessing everyone's contribution leads people to have a greater sense of belonging to the organization and generates more creativity.[40] Quality is therefore an "issue for all functions and activities".[41] Feigenbaum was credited to have originated the "cost of quality concept" as a way of measuring the benefits of adopting the total quality management approach.[42]

Philip Crosby

Crosby's philosophy is encapsulated in four quality management essentials, which he calls the "Four Absolutes of Quality"[43]: (a) Quality is conformance to requirements, not goodness or elegance; (b) The system of quality is prevention, not appraisal or inspection; (c) The performance standard is zero defects, not "that's close enough"; (d) The measurement of quality is the price of non-conformance or the cost of quality, not quality indices.

Kaoru Ishikawa

Ishikawa is considered as the "father of quality circles" in Japan. The success of quality circles could be attributed in part to the use of innovative tools by all workers to analyze and solve problems. One such tool is Ishikawa's cause and effect diagram, sometimes called the fishbone diagram because it resembles a fish skeleton.[44] This quality improvement tool, which was invented by Ishikawa in 1943, is the most widely taught and practiced technique for analyzing the causes of a known effect.

Genichi Taguchi

Under the Taguchi approach, quality is defined and evaluated via a "quality loss function". Taguchi defined this loss as "costs incurred or profits foregone relative to some baseline of performance".[45] Quality loss is measured as a function of the deviation from a specified target or from an ideal performance level and is expressed in terms of monetary units. All quality improvements are evaluated in terms of cost savings they generate such that cost and quality improvements become the same. Overall, Taguchi's philosophy recognized quality as a societal issue and not just an organizational one.

William E. Conway

Conway taught that quality is a result of "the development, manufacture, administration, and distribution of consistent low-cost products and services that customers want and need".[46] He also taught that quality management is about constant improvement in all business operations including suppliers and distributors. As a top manager himself, Conway understood the importance of quality from a different perspective. He called his approach to quality "the right way to manage" and "a new system of management".

Shigeo Shingo

Shingo advocated that errors be identified as they happen and be corrected right away before serious damage occurs. Like Crosby, Shingo proposed his version of zero defects known as "Poka-Yoke" or "defect = 0." He pushed the idea that errors must be identified and handled rigorously and thoroughly as they occurred.

Masaaki Imai

His most influential book is *Kaizen* which was published in 1986. *Kaizen* consolidates the management philosophies, theories, and tools that have been developed in Japan over the years under the "Kaizen umbrella." Kaizen is considered one of the single most important factors behind the Japanese industrial success. The term means "ongoing improvement involving everyone from the top managers to the workers".[47]

Shigeru Mizuno

Mizuno concentrated on defining clearly and systematically the steps to the practical implementation of quality management. An example of such work is his book *Company Wide Total Quality Control*, which was first published in Japan in 1984.

H. James Harrington

Harrington taught that a quality program would only succeed if it becomes the predominant way of life in the organization. Like Conway, he also emphasized the important role of management in improving quality. He especially considered the key role of the first-line supervisor in the successful implementation of any quality improvement program.

Richard J. Schonberger

In his best-selling book *Japanese Management Techniques*, he powerfully argued that the Japanese economic miracle had little to do with the national culture. The techniques used by the Japanese could easily be adopted outside of Japan. Schonberger maintained that in order to succeed modern business must be able to respond to changing market needs. He showed how industries and businesses can apply "the lessons of simplicity" to improve production and cut manufacturing lead times.

THE GURUS' COLLECTIVE WISDOM

The quality gurus came from different backgrounds and interests and worked in different situations and periods. These factors account to some extent for the differences in the way their ideas, philosophies, principles, and methods have developed. Some have focused on the technical side of quality while some have contributed to the human dimension of quality management.[48] Their methodologies and approaches to implementation "can sometimes resemble a number of pharmaceutical companies offering different cures for the common cold".[49] However, in the broad philosophies of all the gurus, there is a common thread. Despite the differences, there are concepts that are common to all of them. Macdonald and Piggott summarized these concepts as follows:[50]

1. Top management must lead in the change process.
2. The change process requires a cultural transformation.
3. Quality is integrated into all functions and not regarded as a separate function.
4. People, not machines, are the driving force behind quality.
5. Quality requires participation from everyone in the organization.
6. Motivation alone does not engender change although it is important.
7. Company-wide education and training is essential for long-term improvement.
8. Continuous improvement demands commitment and singleness of purpose from top management.

Tenner and DeToro gave a very good exposition on the gurus' common teachings.[51]

> *The common thrust behind the teachings of each of these quality gurus is the concept of continuous improvement. Although their approaches differ in technique, emphasis, and application, the objective is the same – continuous improvement of every output, whether it be a product or a service, by removing unwanted variation and by improving the underlying work processes.*

THE STATE OF QUALITY IN THE 21ST CENTURY

According to Juran, the modern quality movement has only been around for decades.[52] Thus, it will probably take many more decades if not a whole century for this discipline to mature. Juran believes that the evolution of managing for quality will likely follow the path of other disciplines like finance and accounting which, after centuries of development, have already gained a greater state of maturity.

According to Conti, Kondo, and Watson, "quality is becoming an integrated system where the best of all approaches are merged into unique quality systems that engage the entire business, rather than a single function."[53] The current state of quality can be described in terms of three variants: compliance-oriented, improvement-oriented, and business-management oriented. These variants, which need to coexist, must be managed well in order for the organization to succeed.

Compliance-Oriented

This picture of quality focuses primarily on meeting specifications, developing procedures, providing documentation, and ensuring consistency. It also involves establishing standards based on customer requirements, needs, and expectations, and ensuring that these standards are met, current nonconformance corrected, and potential future nonconformance prevented. Customer-oriented quality is often applied to manufacturing although it can also be applied to service industries. It developed with the introduction of statistical quality control (SQC) and statistical process control (SPC). The primary goal of SQC is to monitor and control variation in the product being produced and in the service, being provided.[54] It relies on statistical charts to monitor and control product variables and on acceptance sampling to replace one hundred percent inspection. SPC, on the other hand, focuses on the prevention of defects by applying statistical methods to control the production process. This shifts the emphasis from utilizing statistical control methods to inspect or detect poor quality to using them to prevent poor quality. With prevention, the process, rather than just the product, is monitored, controlled, and adjusted to ensure correct performance. The responsibility for quality falls on the designers and manufacturers instead of inspectors. SQC also seeks to produce parts as close to the "nominal" values as possible instead of simply trying to meet specification limits. In the service sector, SQC strives to provide services of consistent quality from customer to customer.

Improvement-Oriented

Improvement-oriented quality, also known as Total Quality Management (TQM), emphasizes continuous process and system improvement to achieve customer satisfaction and ensure long-term organizational success. It promotes an integrated process improvement approach involving all the departments of the organization. It involves problem prevention, process improvement, and a team-based approach to problem solving and product improvement. The TQM approach encourages a long-term, never-ending commitment to process improvement. It is adaptable as it seeks to meet the changing needs, requirements, and expectations of customers. Improvement-oriented quality has a wide range of applications from manufacturing, to service, and to support operations.

Business-Management Oriented

This form of quality calls for an integrated deployment of strategy and careful attention to critical success factors. This orientation, which is broader in scope, encompasses the other two described above. It requires a comprehensive vision of the business, and a broad understanding of its markets, its core processes, its value chain, and its key success factors. Business management oriented quality calls for the genuine involvement of top-level management and every employee in integrating continuous improvement efforts into everyday business activities. This involves developing the mission statement to support the organizational vision, which provides the basis for subsequent strategies, objectives, and decisions.

QUALITY SYSTEMS AND QUALITY AWARDS

Building and sustaining quality organizations require a solid foundation. Designing an effective organizational structure calls for an understanding of best practices, a solid, process-oriented quality assurance system, and a process of continuous evolution toward high-performance management practices.[55] A quality management system, thus, contains necessary ingredients that "enable organizational employees to identify, design, develop, produce, deliver, and support products or services that customer wants".[56] The systems approach teaches that customer satisfaction can only be achieved if all areas of the organization work together. Moreover, achieving customer satisfaction depends not only on how well and how thoroughly quality actions in the several areas of the organization work individually but also on how well and how thoroughly they work together.[57]

ISO 9000

ISO 9000, originally published in 1987, is one of the best-known quality management systems certifications in the world. Its focus is for companies to document their quality systems in a series of manuals to facilitate trade through supplier conformance. ISO standards provide a baseline against which an organization's quality can be judged via multidisciplinary participation in quality-improvement efforts, documentation of systems and procedures, and the basic structural elements necessary for quality systems. They are based on the premise that certain generic characteristics of management practices can be standardized, and that the quality system will provide confidence that the outputs will meet customer expectations and requirements. The ISO prefix comes from *iso*, which is a scientific term for equal. ISO certification means that an organization is assured to have quality equal to its peers. The ISO standards define quality assurance at three levels. Level 1 (ISO 9001) is applicable to firms that design, develop, produce, install, and service products. Level 2 (ISO 9002) applies to firms engaged only in production and installation. Level 3 (ISO 9003) applies to those engaged only in final inspection and test.

ISO 9000, on one hand, describes the key concepts of quality assurance which include the objectives and responsibilities for quality, stakeholder expectations, the concept of a process and its role in a quality system, the roles of documentation and training, and the application of different standards. ISO 9004, on the other hand, guides the development and implementation of a quality system. The latest revision to the ISO standards, which is currently known as ISO 9000:2015, provides a recognized international quality standard that businesses can follow. Companies seeking ISO certification document their systems in a series of manuals to facilitate trade through supplier conformance.

For ISO 9000, documentation and record keeping are very important. Some examples of these records may be employee training records, procedures, policies, instructions, process control charts and capability records, and so on. Sound documentation ensures that work is performed consistently and the causes of poor quality determined and corrected. Excellent record keeping helps to maintain product or service quality by providing records that are easy to retrieve, legible, appropriate, accurate, and complete.

Organizations seeking ISO certification must prove compliance with the ISO 9001 standard, which is certified by an accredited, independent ISO 9000 registrar. It is the work of the registrar to conduct a thorough audit of the applying organization to verify that it indeed meets the requirements as set forth in ISO 9001. Once an organization has been certified, surveillance audits are conducted, often unannounced, and often every six months, to ensure continued compliance.

As an international quality management system, ISO 9000 has its share of limitations. Obtaining certification can be time consuming and costly. Depending on the current state of the organization's quality system, certification may take several thousand employee-hours and thousands of dollars. Its adoption and implementation can be hindered by a number of factors, including insufficient management involvement in the process, inadequate resources, lack of an implementation plan, or lack of understanding of ISO 9000 and its benefits. Nevertheless, ISO 9000 has also produced some major benefits. One of these is that ISO has pushed almost everyone in the organization to be concerned with and to be accountable for quality. Quality, which used to be the domain of the quality manager, has now become the responsibility of all personnel. The main purpose of the ISO 9000 standards is to achieve an effective management system that focuses on continuous improvement, communications, and meeting customer requirements.

ISO 14000

Established in 1996, ISO 14000 is a series of standards intended to promote a common approach to environmental management and help organizations attain and measure improvements in environmental performance.[58] It provides guidelines and a compliance standard.[59] The compliance standard is named ISO 14001 which provides the basis for developing a comprehensive environmental management system. The process for documenting the elements of ISO 14001 and seeking certification is similar to that of ISO 9000:2015. Just like in ISO 9000, an important part of the process in ISO 14000 is the selection of the appropriate registrar.

ISO/TS 16949

Established in 1999, ISO/TS 16949 was designed to define automotive industry standards worldwide. It "specifies the quality system requirements for the design/development, production, and, where relevant, installation and servicing of automotive-related products".[60] It is closely aligned with ISO 9000:2015 and is founded on a systems view of automotive production. ISO/TS 160949 consists of the following sections: management responsibility, resource management, product realization and measurement, analysis and improvement.

Lean Production and Lean Enterprise

The concept of lean production (a.k.a. just-in-time) can be described from both a philosophical and from a systems point of view. From a philosophical view, lean can be defined as waste reduction. Anything in the process that does not add value to the customer should be eliminated. From a systems viewpoint, lean is a group of techniques or systems focused on optimizing group processes. This view is exemplified by the lean production system initially developed and refined by Toyota Motor Company. The focus is to "get more with less" by eliminating "waste in all forms, including defects requiring rework, unnecessary processing steps, unnecessary movement of materials of materials or people, waiting time, excess inventory, and production".[61] Overall, lean production focuses on optimizing processes through the philosophy of continual improvement.

Lean production enables the company to "become vastly more flexible and responsive to customer desires".[62] Implementing lean production requires a huge amount of detailed planning, discipline, hard work and painstaking attention to detail. It is facilitated by a "focus on measurement and continuous improvement, cross-trained workers, flexible and increasingly automated equipment, efficient machine layout, rapid setup and changeover, just-in-time delivery and scheduling, realistic work standards, worker empowerment to perform inspections and take corrective action, supplier partnerships, and preventive maintenance.[63]

Quality experts believe that the next step in achieving superior performance is to go beyond lean production by linking individual lean activities up and down the value chain to form a continuous value stream that creates, sells, and services a family of products. This involves the creation of a lean enterprise, which is nothing more than a group of individuals, functions, and legally separate but operationally synchronized companies. The manager of a lean enterprise must know how to manage the conflicting needs of individuals, functions, and companies. For instance, at the individual level, most people equate having a job and a career with self-respect and financial well-being. It is therefore ridiculous to assume that they will accept any changes that will eliminate their jobs. Because lean activities often result in excess number of employees, the jobs problem becomes a major obstacle for any enterprise that attempts to achieve and maintain a superior level of performance. At the functional level, it is generally recognized that functions are places where knowledge is accumulated, taught, and improved. In a learning organization, they are where learning is collected, systematized, and deployed. Because of the depth of knowledge that is required and the time and effort needed to obtain that knowledge, functional specialists are often more committed to their function than to the enterprise as a whole. At the company level, organizations are often preoccupied with survival and the need to make an adequate return. When faced with hard times, these organizations often tend to gravitate toward control rather than efficiency and customer responsiveness.

The lean enterprise can address the conflicting needs of individuals, functions, and companies (a) by offering employees career paths that alternate between concentration on a value chain and knowledge building within functions; (b) by turning functions into schools; and (c) by focusing organizations on a narrow set of tasks and implementing a new code of behavior to keep their members in line. As much as possible, organizations must explore every option to preserve jobs as they create lean enterprises. Womack and Jones[64] believe that creating lean enterprises and finding new tasks for excess employees is better than any industrial policy that the government could ever devise.

Six Sigma and Lean Six Sigma

Six Sigma, pioneered by Motorola in 1982, is generally considered more of a business strategy than a quality program.[65] It consists of a "well-thought-out packaging of quality tools and philosophies in an effort to provide rigor and repeatability to quality improvement efforts".[66] Its focus on cost reduction and profits sets it apart from traditional continuous improvement and makes it very popular with top management. Six Sigma is organized around creating champions (responsible for management and guidance), master black belts (advanced training in one or more specialties), black belts (skill-building tools/methods course), green belts (introductory methods/tools course), yellow belts (introductory methods/tools course), and white belts (an awareness course).

Six Sigma can be defined in four different ways. First, as a metric, it can be considered as a statistical measure of process performance. The Six Sigma methodology is based on the value (6σ) used to calculate process capability, C_p. Cp = (USL-LSL)/ 6σ, where USL is the upper specification limit while LSL is the lower specification limit. When C_p = 2.00, Six Sigma has been achieved. Operating at a Six Sigma level enables an organization's production to have virtually zero defects (long term expectation for the number of defects per million opportunities is 3.4 units). Some of the benefits of Six Sigma are robust designs, radically lower defects, and lower costs of poor quality.

Second, Six Sigma can be considered a methodology which combines rigorous statistical analyzes of problems with a host of statistical tools to address a variety of problems, to reduce variation, and to optimize and control process output. While none of the statistical tools used are new, what is new is how these tools are packaged and deployed in the organization. About 90% of quality problems can be handled by the basic tools of quality, however, the next 10% requires advanced training and analytical techniques which a Six-Sigma program can provide. Currently, the tools that are being integrated into Six Sigma are those that were once associated with Japan's lean management processes. Third, Six Sigma can also be considered as a philosophy of management which links improvement targets to both an organization's strategy and its business results. It has evolved into an organization-wide program for improvement involving hierarchical training, organizational learning, and pay for learning. Fourth, the Six Sigma process can become part of an organizational culture that promotes near-perfect performance in organizational processes. While it started as a single firm's approach to reduce costs and improve quality, Six Sigma today means much more as it "involves planning, organization, training, human resources planning, and pay for knowledge".[67] Its supporters believe that this new methodology will help reinforce the "total" in total quality management by assuring that quality management will find its way into all areas of the organization. Six-Sigma's focus on cost-reduction and profit has made it so popular with the world's top managers – an accomplishment that is difficult to achieve and one that perhaps will have a long-lasting impact on business thinking.

Implementing Six Sigma involves four major processes: change management, innovation, problem-solving and project management. Change management emphasized accountability for results, measurement, and management by fact. The Six Sigma innovation process is also known as Design for Six Sigma (DFSS) the overall objective of which is to design products, processes, or services that consistently meet customer expectations. DFSS requires either the DMADV (design, measure, analyze, design, verify) process or the IDOV (identify, design, optimize, verify) which focuses more on final engineering design optimization. The problem-solving process requires the DMAIC (define, measure, analyze, improve, control) methodology. When DMADV or DMAIC are employed to manage project reviews, then an organization has taken the step towards project management.

The latest development in the evolution of quality management is the development of Lean Six Sigma – the integration of lean production methods with the Six Sigma methodology. Some people consider Lean Six Sigma as an improvement method because it uses data to eliminate and eliminate process problems. Others consider it an improvement engine because it establishes a whole new set of rules and procedures within an organization to continuously generate quality results. According to George, Rowlands, and Kastle,[68] the goal of Lean Sigma is to enable organizations to delight their customers (delivering higher quality product in less time) by improving their processes (eliminating any defect or anything that was unacceptable to a customer) through teamwork (sharing of ideas with team members) and data-based decision making (all decisions are based on data).

Malcolm Baldrige National Quality Award

The Baldrige Award was established in 1987 by the United States Congress to set a national standard for quality excellence. Its principal focus is on promoting high-performance practices that leads to customer satisfaction and organizational results. The award is designed to "promote awareness of quality as an increasingly important element in competitiveness, understanding of the requirements for quality excellence, and sharing of information on successful quality strategies and the benefits derived from the implementation of those strategies".[69] Originally, the award has three eligibility categories: manufacturing companies, service companies, and small businesses. In 1999, eligibility was expanded to education and healthcare. In 2005, it added a government and nonprofit category.

The award examination is based upon a rigorous set of criteria which consist of seven major categories: (1) leadership, (2) strategic planning, (3) customer focus, (4) measurement, analysis, and knowledge management, (5) workforce focus, (6) operations focus, and (7) results. These categories form an integrated management system to achieve performance excellence. The Baldrige criteria are built upon a set of core values and concepts, which integrate overall customer and company performance requirements. Examples of these values are as follows: customer-driven quality, leadership, continuous improvement, employee participation and development, fast response, design quality and prevention, long-range outlook, management by fact, partnership development, and corporate responsibility and citizenship.

In recent years, the number of state quality awards has increased. Some states adopted the "full-Baldrige approach" where the full criteria were adopted but the scores required to win the awards were lower. Other states have taken the "Baldrige-lite approach" where the criteria were used but the process application was simplified. Still other states used the "multilevel approach" where top level companies used the full-Baldrige criteria; the second level, the Baldrige-lite approach; and the lower levels, some sort of recognition for those firms putting forth significant effort toward improving performance.

Other International Awards

Many countries and regions of the world have established awards and awards criteria. A few of these, which will be described in this section, are as follows: European Quality Award, Canadian Awards for Business Excellence, Australian Quality Awards, and the Deming Prize.

The European Quality Award was designed to increase awareness throughout the European Community, and businesses in particular, of the growing importance of quality to their competitiveness in the increasingly global market and to their standards of life. The award consists of two parts: the European Quality Prize and the European Quality Award (now known as the Business Excellence Model). The former is given to companies that demonstrate excellence in quality management practice by meeting the award criteria. The latter is awarded to the most successful applicant. The award process is similar to the Deming Prize and Baldrige Award although it places greater emphasis on an organization's impact on society.

The Canadian Awards for Business Excellence were designed to stimulate and support quality-driven innovation within all Canadian enterprises and institutions, including business, government, education, and healthcare. The criteria are similar in structure to the Baldrige criteria with some key differences. The major award categories are leadership, customer focus, planning for improvement, people focus, process optimization, and supplier focus.

The Australian Quality Awards include the following assessment criteria: leadership, strategy and planning, information and analysis, people, customer focus, processes, products and services, and organizational performance. As with the Baldrige, the awards framework emphasizes the holistic and interconnected nature of the management process. One of its distinctive aspects is solid union backing for the awards.

The Deming Prize, established in 1951 by the Japanese Union of Scientists and Engineers, is awarded to individuals and groups who have contributed to the field of quality control. It is awarded in three categories: Deming Application Prize for Division, Deming Application for Small Business, and Quality Control Award for Factory. Unlike the Baldrige, which has become very managerial in nature, the Deming Prize focuses more on the nuts and bolts of quality improvement.[70] Also, the latter is so focused on the statistical methods, a complete picture of the management system may not emerge. To deal with this problem, Japan has developed another award known as the Japan Quality Award, which closely resembles the Baldrige Award.

FUTURE TRENDS IN QUALITY

In an article published in 1998, quality pioneer Armand Feigenbaum[71] explained various trends that will shape the direction of quality management in the future. He foresaw that customers on a global scale would continue to demand high quality and added value from producers of goods and services. These customers would be interested not only in the quality of the products or services provided but also in the quality of the organizations that provide them. Having an excellent product is not enough. The organization must also provide quality services like accurate billing, reliable delivery, after-purchase support, and other services. It will need to harness the power of technology on behalf of the customer to sustain its competitiveness in the 21st century. Global economic competition will exert enormous pressure on organizations to continually improve quality while simultaneously reducing production cost and prices charged to consumers. To succeed in this environment, companies must learn to manage their budgets and know how to lead their people at the same time. This will certainly require fundamental changes in the way the organization operates.

Given the evolution of managing for quality over the centuries, it is fascinating to identify what the next developments might be. Goetsch and Davis predict that quality management as both a practice and a profession has a bright future.[72] In fact, in terms of succeeding in the global marketplace, quality management is the future. Those organizations that fully institutionalize the principles of quality management have a strong chance of succeeding in the global marketplace now and in the future. Such companies will exhibit the following characteristics:[73]

- A total commitment to continually increasing value for customers, investors, and employees
- A firm understanding that market driven means that quality is defined by the customer, not the company
- A commitment to leading people with a bias for continuous improvement and communication
- A recognition that sustained growth requires the simultaneous achievement of four objectives all the time, forever: (a) customer satisfaction; (b) cost leadership; (c) effective human resources; and (d) integration with the supplier base
- A commitment to fundamental improvement through knowledge, skills, problem solving, and teamwork

Juran[74] believes that the evolution of managing for quality will most likely follow the path of other disciplines like finance and accounting which have already reached a greater state of maturity. Studies in these disciplines, which have taken centuries to develop, have yielded a consensus in many aspects of the field. Recent developments in managing for quality indicate some commonality with the path these disciplines have taken. It is expected that the focus on quality will continue to gain more prominence as national leaders and policy makers realize its importance to managing their respective economies. It is also expected that quality will become a significant object of study in business, government, and other not-for-profit organizations.

The new millennium, however, is going to present some significant challenges. Some say that it will bring a proliferation of ideas, innovations, and improvements.[75] Others say that it will require higher skill levels, greater gender balance, and increasing workplace diversity. Whatever the case, it is almost certain that market developments will create an ever-increasing standard of expectations and higher demands on goods and services providers. To thrive in this dynamic environment, business must continue to focus on innovation, flexibility, and speed.

We will probably see an increasing application of quality principles to information and knowledge management as quality evolves from the industrial age to the information age. We will probably see a move towards greater integration between the analytically based "systems and statistical engineering approach" to quality and the psychologically based "human relations approach".[76] Applications in business, healthcare, education, the government, and other organizations will continue to refine its methodologies and practices. Just as quality played a major role in raising Japan's standard of living after World War II, quality will play a similar role in bringing entire national economies into stronger positions in the global system of trade and commerce. In the 21st century, quality will probably be used to fight social ills and promote equal distribution of wealth and equal access to sources of progress like higher education and advanced health care. The focus will probably shift from a "single bottom line" to a "multiple bottom line" that includes not only financial results but people- and society-related results as well. To sum it up, quality will be employed to improve the social and economic lives of many in the new millennium.

Juran predicts that the following developments will take place during the 21st century:[77]

- Awareness of the new importance of quality will spread to national policy makers: legislators, administrators, and economists.
- Correlations will be established between performance on quality versus financial results.
- Standardized reports will evolve to provide a summary of the quality achievement record of companies as well as their current status.
- Financial analysts will use achievements in quality as inputs for rating creditworthiness as well as for judging the financial potential of companies.
- National, industry, and other quality indexes will be evolved. One example of this is the Baldrige Index, which measures the stock market performance of all Malcolm Baldrige National Quality Award (MBNQA) winners.
- Degree-granting colleges oriented to quality will proliferate.
- The K-12 schools will evolve courses relating to managing for quality.
- Research in quality will intensify.
- Professionalism among quality specialists will grow.
- It is conceivable that future laws will extend the use of licensing in the quality field, on the ground of protecting the public interest.

The modern quality movement has only been around for decades. It still has far to go before it becomes widely effective among world economies. It will probably take many more decades, if not a whole century, for the quality management discipline to mature and for nations and economies to assimilate this change. In this regard, the twenty-first century may well become known to historians as the Century of Quality.[78]

PART II: QUALITY CONCEPTS IN HIGHER EDUCATION

Quality is an elusive concept. Its meaning varies from person to person and from organization to organization. However, for institutions competing in a global marketplace, it is important to define quality strategically. It is also important to remember that the meaning of quality changes with time and circumstances. It involves meeting and exceeding customer expectations and applies to products, services, people, processes, and environments. To address these definition issues, a quality framework for higher education is developed in Chapter 3.

The notion of having customers is still foreign to many campuses. Yet, it has been proven over and over again that customer-driven institutions are effective because of their ability to satisfy and anticipate customer needs. The success of higher educational institutions in the future will increasingly be determined by how effectively they satisfy their various customers. Identifying and satisfying the needs of customers will be discussed in Chapter 4. The success of meeting customer needs will be gauged by how everyone within the educational system works together to achieve the aim of the system. What is needed within the halls of academia is collaboration and transformation towards a new style of management. The subject of managing the educational system will be discussed in Chapter 5. The transformation to a new style of management requires a change in paradigms and old habits. It requires a change in roles, responsibilities, and behaviors of every organizational participant beginning with the leadership. Administrators must lead in a way that cultivates a high level of trust and respect from their subordinates. They must demonstrate commitment by consistently displaying high ethical standards and by exhibiting the willingness to make personal sacrifices to uphold these values. It is evident that moral leadership will remain as an important and critical variable for long-term business success. Quality, ethics, and moral leadership will be the subject of Chapter 6.

3 A QUALITY FRAMEWORK FOR HIGHER EDUCATION

Quality is a complex concept. Its meaning varies with different people and organizations. Its definitions range from the conventional to the more strategic. From the conventional perspective, a quality item is one that "wears well, is well constructed, and will last a long time".[79] Traditional management views quality as synonymous with goodness, elegance, excellence, or "I know quality when I see it".[80] However, for managers doing business in a very competitive global marketplace, the strategic definition, which is "meeting the needs of customers," makes more sense. Strategically, quality has been defined as follows:[81]

- Performance to the standard expected by the customer – Fred Smith, CEO of Federal Express.
- Meeting the customer's needs the first time and every time – General Services Administration.
- Providing our customers with products and services that consistently meet their needs and expectations – Boeing.
- Doing the right thing right the first time, always striving for improvement, and always satisfying the customer – U.S. Department of Defense.

David Garvin, in his book *Managing for Quality*, identified five principal approaches to defining quality.[82] They are transcendent, product-based, user-based, manufacturing-based, and value-based. The transcendent approach equates quality with "innate excellence," a property which is considered absolute and universally recognizable. According to this view quality cannot be defined but "you know it when you see it".[83] It is understood only after exposure to a series of objects that exhibit its characteristics.

The product-based approach views quality as the presence or absence of a particular desired attribute. The greater the amount of a desired attribute a product or service possesses, the better its quality. The manufacturing-based approach, on the other hand, defines quality as conformance to a set of requirements or specifications and "making it right the first time".[84] Any deviation from these requirements or specifications implies lack of quality.

According to the user-based approach, quality "lies in the eyes of the beholder".[85] The quality of a product or service depends on its ability to satisfy the preferences of individual consumers. The user-based definition is one that is highly subjective. The value-based approach defines quality in terms of cost and price. A quality product or service is one that "performs or conforms" at an acceptable cost or price.

There is no single definition of quality that is accepted universally. There are as many definitions of quality as there are books and authors. Nevertheless, its various strategic definitions share the same common elements:[86]

- *Quality involves meeting or exceeding customer expectations.*
- *Quality applies to products, services, people, processes, and environments.*
- *Quality is an ever-changing state – what is considered quality today may not be good enough to be considered quality tomorrow.*

Quality, based on the aforementioned common elements, may be defined as "a dynamic state associated with products, services, people, processes, and environments that meet or exceed current expectations".[87] This definition asserts that quality changes with time and circumstances. It also stresses that "quality applies not just to products and services provided, but also to the people and processes that provide them and the environments in which they are provided".[88]

DISAGGREGATING PRODUCT QUALITY

Product quality can be decomposed into eight dimensions or categories.[89] They are performance, features, reliability, conformance, durability, serviceability, aesthetics, and perceived quality. Decomposition provides a descriptive framework that leads to a better understanding of the concept. It allows for research, test, and discussion of quality. The dimensions further provide a framework for examining a product or a service.

1. *Performance*. Performance refers to the primary operating characteristics of the product. It normally involves objective and measurable product and service attributes and combines elements of product-based and user-based approaches just described. Whether performance differences can be translated into quality differences depends on the circumstances as well as on individual preferences.
2. *Features.* Features are secondary characteristics that augment the basic operation of a product or service. Like performance, features involve objective and measurable product and service attributes. They are usually measured in terms of variety and the strength of their appeal. Compared with other dimensions, features are more volatile as they can quickly turn into one of the product's primary characteristics over time. In many instances, it is difficult to draw the line between a product's performance and features. Whether product or service characteristics are primary or secondary depends largely on the degree of importance attached to them by the user. Whether feature differences are perceived as quality differences depends normally on individual preferences.
3. *Conformance*. Conformance is the extent to which the product or service meets established specifications or standards. When a product is designed, certain numeric dimensions or specifications are established such as capacity, speed, size, durability, etc. These specifications are normally allowed to vary within an allowable range known as tolerance. If a product dimension falls within the tolerance limits, it is said to conform.
4. *Reliability.* This dimension reflects the probability of failure or malfunction of a product over a specified period of time. It also reflects the probability of a service not being delivered consistently over time. Reliability increases in significance as maintenance, downtime, predictability or timeliness becomes more important to the customer.

5. *Durability*. Durability has both technical and economic dimensions. From a technical viewpoint, durability is the amount of use of a product before its physical deterioration. From an economic angle, it refers to the amount of use of a product before such product breaks down and replacement is preferred over continued repair. With products that cannot be repaired, the technical life and economic life are the same. With products which can be repaired, the users compare the expected costs of future repairs with the investment in and operating expenses of a newer, more reliable model. Durability and reliability are closely related. A product that fails frequently is more likely to be replaced earlier than one that is more reliable.
6. *Serviceability*. Serviceability refers to the speed, courtesy, competence, and ease of repair of a product. Examples of measures of serviceability are mean time until a service representative arrives, mean time to repair, average number of service calls required to correct problems, and mean waiting time to speak to a customer-service representative when calling about problems. Personal behavior such as courtesy particularly in the handling of complaints is often the most critical aspect of perceived serviceability and can be a powerful competitive advantage.

7. *Aesthetics.* Aesthetics pertains to how a product (or service) looks, feels, sounds, tastes, or smells. It is related to the user-based approach to quality. A very subjective dimension, aesthetics is purely a matter of personal judgment and a reflection of individual preferences.
8. *Perceived Quality.* Very often consumers do not have complete information about a product or service. They therefore rely on indirect sources of information such as the various tangible and intangible aspects of the product as well as signals from the organization. Typical sources of information include organization or brand information, image, advertising, warranties, and guarantees. Reputation is considered to be one of the primary contributors to perceived quality. It is often used by consumers as an anchor point from which to evaluate an organization's products or services.

DISAGGREGATING SERVICE QUALITY

Service can be defined as "any primary or complementary activity that does not directly produce a physical product".[90] Quality in service may be defined as how well customers perceive their expectations to have been met. "If quality is to be measured, a subjective assessment must be used to determine whether the experience was a pleasant or an unpleasant one".[91] Managing for quality in services is often challenging because their production typically requires a high degree of customization. No two services are exactly alike. Many service attributes are intangible; therefore, they cannot be stored, inventoried or inspected prior to delivery.[92] Because of this intangibility, it is often difficult to obtain hard data relating to services. Production and consumption of services often occur simultaneously. This means that the service must be done right the first time. Customers tend to be more intimately involved in the production of services. Such customer contact increases the variability in the provision of the service and makes it more difficult to control. Each of such contact can be considered a moment of truth.[93]

The nature of services makes it challenging for service providers to fully understand and apply quality principles in their operations. However, a number of service quality dimensions have been developed to measure service quality performance. A number of these dimensions are listed below:[94]

a) Time – the amount of time a customer must wait
b) Timeliness – the service is performed as promised
c) Completeness – all items are included in the order
d) Courtesy – frontline employees greet each customer cheerfully

e) Consistency – services are delivered in the same fashion for every customer, and every time for the same customer
f) Accessibility and convenience – the service is easy to obtain
g) Accuracy – the service is performed right the first time
h) Responsiveness – service personnel react quickly and resolve unexpected problems

DEFINING TOTAL QUALITY

According to Ciampa, total quality can be defined in at least three ways.[95] One is by focusing on the unifying principle that forms the basis for everything that the organization does. That unifying principle can be summed up simply as total dedication to the customer. A total quality organization is fully dedicated to the satisfaction of its customers. All employees are involved and all activities of the organization are designed and implemented in such a way that the requirements of the ultimate customers are met and their expectations exceeded.

Another way of defining total quality is "to describe the outcomes that a TQ quality company strives for; the major results of the various activities its people seek to create or enhance.[96] Customers in a total quality organization are loyal because their needs are being met and their expectations are being exceeded. The total quality organization minimizes the time to respond to customer problems and needs and market opportunities. It also minimizes costs by eliminating or minimizing tasks that do not add value to the organization. The total quality organization fosters a climate that supports and encourages teamwork and provides a more satisfying, motivating, and meaningful work for employees. It encourages continuous improvement of all aspects of the organization.

The third way of defining total quality is to describe the various tools, techniques, and elements that lead to desired quality outcomes. A number of these tools are taken from Quality Control, Quality Assurance, and Reliability Engineering and are employed to make the process for providing goods and services more predictable. Tools and techniques from Just-In-Time are utilized to minimize production cost and time. A number of elements from Organizational Development such as work climate, teamwork, management skills, innovation, and employee participation are also involved. Finally, elements of leadership are necessary to provide guidance, create a vision, and foster a climate which encourages teamwork and participation in decision making.

Geotech and Davis defined total quality as "an approach to doing business that attempts to maximize the competitiveness of an organization through the continual improvement of the quality of its products, services, people, processes, and environments."[97] They further outlined the distinctive characteristics which differentiate total quality from other approaches to doing business. These characteristics are as follows:

1. *Customer focus.* A total quality organization seeks to satisfy its customers, both external and internal, by meeting their requirements, exceeding their expectations, and giving them lasting value. External customers define the quality of the product and service delivered while internal customers define the quality of the people, processes, and environments associated with such product or service.
2. *Unity of purpose*. Total quality requires a unity of purpose founded on a clear and widely understood vision. A quality organization nurtures total commitment from its employees. It fosters excellence in work and a family-like attitude in human relationships.

3. *Obsession with quality*. A total quality organization involves all of its personnel to deliver quality goods and services which will meet or exceed customers' requirements and expectations. When an organization is totally dedicated to the customer, good enough is never good enough. It continually seeks to improve its product and service offerings.
4. *Use of scientific approach*. Total quality relies on the scientific approach not only in structuring work but also in making decisions and solving problems related to that work. A quality organization does not merely rely on hunches but uses hard data in setting benchmarks, making improvements, and improving performance.
5. *Long-term commitment*. Total quality is not just another management innovation or fad that will soon pass away. It is a whole new way of doing business that requires a whole new organizational culture. Building and maintaining a quality organization takes time and demands a long-term commitment from both management and workers.
6. *Teamwork.* A total quality organization encourages teamwork and partnerships with its workers, suppliers, regulation agencies, local communities, and other stakeholders. By minimizing or eliminating internal competition, it is able to focus its energy on improving quality and external competitiveness.
7. *Continual improvement of systems.* A total quality organization continually improves its systems in order to improve the quality of its products and services.
8. *Education and training.* Education and training are vital to the continual improvement of people in an organization. It is through these that people who learn to work hard learn how to work smart. The workers learn to master their jobs better and expand their capabilities through continuous improvement of their technical skills and professional expertise.
9. *Freedom through control.* In a total quality organization, freedom comes as a result of well-planned and well-implemented controls. By standardizing processes and reducing variation, everyone in the organization has more time to spend in eliminating problems, discovering new markets, and improving quality.
10. *Employee involvement and empowerment*. Involving employees especially those who are closest to the work in question, increases the likelihood of a better decision, a better plan, and a more effective improvement strategy for the entire organization. Empowering employees means involving them in ways that give them a real voice in decision making especially in the improvement of work processes directly under their control.

Total quality stresses the importance of quality in every aspect of the organization.[98] Ishikawa best expressed this broader and more holistic view of quality by stating that "narrowly interpreted, quality means quality of product. Broadly interpreted, quality means quality of work, quality of service, quality of information, quality of process, quality of division, quality of people, including workers, engineers, managers, and executives, quality of system, quality of company, quality of objectives, etc."[99] Masaaki Imai[100] further suggested that

> *in its broadest sense, quality is anything that can be improved. When speaking of "quality" one tends to think first in terms of product quality. When discussed in the context of KAIZEN strategy nothing could be further off the mark. The foremost concern here is with the quality of people. The three building blocks of a business are hardware, software, and "humanware." Only after humanware is squarely in place should the hardware and software aspects of a business be considered. Building quality into people means helping them become KAIZEN conscious.*

The November 1992 report from the Total Quality Leadership Steering Committee, a group of American companies formed to encourage higher educational institutions to teach and practice quality, suggested the following definition of total quality:

> *Total Quality is a people-focused management system that aims at continual increase of customer satisfaction at continually lower real cost. Total Quality is a total system approach (not a separate area or program), and an integral part of high-level strategy; it works horizontally across functions and departments, involves all employees, top to bottom, and extends backwards and forwards to include the supply chain and the customer chain. Total Quality stresses learning and adaptation to continual change as keys to organizational success.*
>
> *The foundation of Total Quality is philosophical: the scientific method. Total Quality includes systems, methods, and tools. The systems permit change; the philosophy stays the same. Total Quality is anchored in values that stress the dignity of the individual and the power of community action.*[101]

Notwithstanding the various definitions set out above, there is no single concise definition of total quality that fits all organizations. Although a considerable area of agreement has already been established, total quality has not yet become a standardized set of concepts.

DIFFICULTIES IN IMPLEMENTING TOTAL QUALITY

Since the 1950s, more than two dozen managerial techniques have waxed and waned. The list reads like a Who's Who of Business Hype. The list includes such words and phrases like Theory Z, Matrix, Managerial Grid, Tgroups, Entrepreneurship, Demassing, One-Minute Managing, Corporate Culture, Karlow, MBWA, Portfolio Management, Restructuring, Excellence, Quality Circles, Wellness, Decentralization, Value Chain, Zero Based Budgeting, Strategic Business Units, Experience Curve, Diversification, Management by Objectives, Conglomeration, Brainstorming, Theory X and Theory Y, Satisfaction/Dissatisfaction, and Decision Trees. Most of these concepts while very helpful did not last because they focused on only certain aspects of the organizational process and not on the organization as a whole.

Total quality (TQ) adopts a holistic approach to managing an organization. Nevertheless, as an approach to management, it does not always work in organizations adopting it. Although its principles have the potential to revolutionize the way an organization is managed, a number of barriers exist that could prevent the philosophy from being fully implemented. While it is true that many have experimented with the approach and have become world class competitors, it is also true that many have not experienced the same measure of success. Much can be learned from their experiences. John Macdonald, the person recognized as a pioneer in bringing the quality revolution to Britain cited ten principal reasons for its failure.[102]

1. **Lack of management commitment**. This is perhaps the most cited reason for the failure of any quality initiative. Very often, managers have treated quality improvement as a short-term undertaking rather than as a never-ending process. Sometimes management is reluctant to change their paradigms or old habits. Macdonald pinpoints however that perhaps it was not commitment that was lacking but rather comprehension on the part of the managers.[103] It is relatively easy for them to be committed at the beginning of any program without or with little understanding as to what they are supposed to be committed to. Many managers especially from the top fail to realize that TQ starts with them, that they must "walk the talk" if they have to cause others to behave differently. They fail to realize that TQ requires a change in the roles, responsibilities, and behaviors of every participant in the organization. Managers can demonstrate unparalleled enthusiasm from the beginning and give rousing speeches about quality but if they don't "walk the talk" their quality initiatives are bound to fail.
2. **Lack of vision and planning**. There is a tendency for some who were converted to the total quality paradigm to rush off where others hesitate to tread and expect others to blindly follow. Unfortunately, they have only vague ideas of where or what their destination is, how to get there, and what they need on their journey. Their conversion to the new philosophy is so total that they have no time even to define the vision and plan how to achieve that vision. But the path to total quality requires an organized approach. The organizational leader needs to have a clear idea where the destination is and then communicate this clearly to all the participants. Setting the vision and planning are essential requirements of the quality management process.

3. **Satisfaction with the quick fix**. There is a tendency for some executives to adopt certain quick-fix methods to improve quality within their organizations. A number of these methods have been part of the overall quality management process of world class organizations. Each of these methods, however, will only work well if set within a new operating environment conducive to their success. Without the necessary cultural change, they will become stale stand-alone programs. One such well-known example is the adoption of quality circles (which are very popular in Japan) by Western management. When the quality challenge posed by Japan became recognized overseas, Western managers and consultants rushed to that country to learn the secret of its success. They thought they found that one secret formula – quality circle – without delving into the real quality issues. In their quick-fix minds, a quality circle was simply a group of workers working with their supervisors to draw fishbone diagrams that would solve all their quality problems. It was simple to organize with responsibility placed squarely on the workers so the idea appealed to Western managers. A few years later, they were puzzled and at the same time dismayed to find out that the latest import from Japan was not working in the new environment. They put the blame in the difference in attitude between the Japanese and the Western worker. While this allegation was partly true, they failed to realize that this difference in attitude was caused by the difference in the behavior of the respective managements. Quality circles are doomed to fail if they are not seen within the context of the overall quality process and managers do not fully understand their role in the said process.
4. **The process became tool bound**. While many tools abound, ranging from relatively simple measurement and process analysis tools to very sophisticated statistical ones, to support the improvement strategy some organizations become so obsessed with them that they forget that these are only a means to an end. If people are so preoccupied with them that they have only little time left to do their real work, the quality initiative is bound to suffer.
5. **Quality too constraining**. TQ takes a holistic approach to managing an organization. In this context, the term quality takes on a broader meaning which covers a whole host of managerial theory. Without this understanding, the word quality will be constraining and can become an obstacle even before the quality initiative starts. A number of executives do not see quality from a strategic perspective but rather see it as something that can be delegated to the quality department and an expense item that needs to be controlled. They fail to understand that quality is something that should permeate everything that happens in an organization.

6. **Satisfaction with customer satisfaction**. Some organizations consider themselves successful when they are rated high in their customer satisfaction indices. While they celebrate their victories and rest in their laurels, the environment is changing around them and they fail to focus on the future needs of their customers. A competitive company must focus its quality strategy on both the current and future needs of its customers.
7. **Culture change versus project approach**. As there are many gurus and writers on the subject of quality, it is natural that each one of them will have different emphases on how best it could be implemented. There is a danger though that the overall philosophy is being artificially divided into two competing implementing strategies namely "the culture change route" (often attributed to Deming) versus the "project approach" (often attributed to Juran) by consultants who want to differentiate their product from others. Such polarization will only lead client organizations to perilous grounds.

8. **Quality management became institutionalized**. Introducing total quality often requires a creation of an initial infrastructure that would plan, facilitate, and support the process of change. Once the philosophy has permeated throughout the organization, its job is complete and all the organizational participants take the responsibility for managing and improving quality. Unfortunately, in some organizations, the initial infrastructures become permanent fixtures ultimately responsible for quality. Not surprisingly, the normal structure of the organization continues throwing its quality problems to the "quality people" and the philosophy does not permeate the operation of the entire organization.
9. **The people were not really involved**. Another source of failure is the inability of management to engage workers in the quality transformation. Unless they understand that their principal role is to help their workers, such transformation will not likely happen.
10. **Lack of real business measurables**. One important catchphrase of quality is "what you cannot measure, you cannot manage". Unfortunately, all too often, many quality management processes are not measured in a meaningful way. In many instances, some companies believe that such techniques as the cost of quality (COQ) is all there is to measure the quality process. At the initial stage of the implementation process, the COQ may be helpful to help organizations understand what is going to cost them for not pursuing quality. However, at the end of the day, the deficiencies, which are the real causes of problems, are the ones that must be addressed and must be the basis for measuring improvement.

"Growing" total quality requires patience because the philosophy will not thrive in a culture which values ready-made, quick-fix menus. TQ farming requires "planting, tending, watering, fertilizing, weeding, and attention".[104] Although the basic principles, methods, tools, and directions are available, every organization must build its own TQ infrastructure.

Unwillingness to change both at the personal and organizational level also impedes acceptance of total quality. Participants sometimes react to the introduction of TQ as if it is the latest gimmick or an "old wine in new bottles" coming from the top of the organization.[105] They believe that if they wait long enough, this latest fad will pass over and they can then get on with their usual business. TQ will not work in organizations where participants are reluctant to change their paradigms or old habits.

TQ is a holistic approach to managing an organization. Choosing to use only this or that part of TQ is bound to fail. "TQ is a complete diet of which everyone in the organization partakes".[106] Feigenbaum, often considered as the father of TQ, has identified ten benchmarks which are keys to successful implementation of TQ in modern organizations.[107] Organizations which have tried TQ but failed will likely find the cause of their failures in the following ten benchmarks.[108]

- *Quality is a company-wide process…. It is a systemic customer-connected process that must be totally and rigorously implemented throughout the company and integrated with suppliers.*
- *Quality is what the customer says it is…. If you want to find out about your quality, go ask your customer.*
- *Quality and cost are a sum, not a difference. They are partners, not adversaries, and the best way to make products and offer services quicker and cheaper is to make them better.*
- *Quality requires both individual and teamwork zealotry. Quality is everybody's job but it will also become nobody's job without a clear infrastructure that supports both the quality work of individuals as well as the quality teamwork among departments.*
- *Quality is a way of managing. Good management used to be thought of as getting the ideas out of the boss's head into the hands of the workers. Today we know better. Good management means personal leadership in empowering the quality knowledge, skills, and attitudes of everyone in the organization to recognize that making quality right makes everything else in the company right.*
- *Quality and innovation are mutually dependent. The key to successful new product launches is to make quality the key to a new product (or service) development from the beginning…. The customer can't seriously tell you his likes or dislikes until he sees or uses the product.*
- *Quality is an ethic. The pursuit of excellence, deep recognition that what you are doing is right, is the strongest human emotional motivator in any organization and it's the basic driver in true quality leadership. Quality programs based solely on charts and graphics are never enough.*
- *Quality requires continuous improvement. Quality is a constantly upward moving target. Continuous improvement is an in-line, integral component of a quality program, not a separate activity, and is achieved only through help, participation, and involvement from all the men and women of the company and its suppliers.*
- *Quality is the most cost-effective, least capital intensive route to productivity. Companies have blindsided their competition by changing their productivity concept from … M-O-R-E to M-O-R-E-G-O-O-D.*
- *Quality is implemented with a total system connected with customers and suppliers. This is what makes quality leadership real in a company, the relentless application of the systematic methodology that makes it possible for a company to manage its quality rather than to just have it happen.*

Tom Peters summarized the reasons for failures of many quality programs as: "They have a system without passion, or passion without a system."[109] Many of these failures can be avoided. According to Macdonald, "the key to lasting success lies right at the start of the journey to continuous improvement."[110] He cited the effectiveness of the original assessment and the comprehensiveness of the plan to manage the change as the real basis for a successful quality journey.

THE BALDRIGE QUALITY AWARD FRAMEWORK FOR EDUCATION

Total quality or quality management requires a major transformation in the way organizations operate. It demands a great deal of time and hard work. Nevertheless, the reward for all this effort is not the Baldrige Award or any award for that matter. The prize for embracing total quality is staying in business and remaining a successful organization.

The Baldrige Award criteria make no attempt to define quality. Nevertheless, they identify an array of areas where organizations will want to be competent in order to be successful. How to achieve these competencies is left to the discretion of the individual organization.

The Baldrige Criteria

The Malcolm Baldrige National Quality Award was created by Public Law 100-107 designed to forge a public-private partnership in order to promote quality among American organizations.[111] It represents the highest level of recognition that an organization can receive.[112] The award was designed to "promote awareness of quality as an increasingly important element in competitiveness, understanding of the requirements for quality excellence, and sharing of information on successful quality strategies and the benefits derived from the implementation of those strategies".[113] According to Hart and Bogan, the award was created to promote the following four goals:[114]

- Help stimulate organizations to improve quality and productivity for the pride of recognition while obtaining a competitive edge through increased profits;
- Recognize the achievements of those organizations that improve the quality of their goods and services and provide an example to others;
- Establish guidelines and criteria that can be used by businesses, industrial, governmental, and other organizations in evaluating their own quality improvement efforts; and
- Provide specific guidance for other organizations that wish to learn how to manage for high quality by making available detailed information on how winning organizations were able to change their cultures and achieve eminence.

The Baldrige criteria consist of seven major categories which are further divided into a number of examination items and areas to address. The seven categories are evaluated separately. The categories, however, are linked to one another and together they function as a system. The seven categories, as applied to education, are described in detail below.

1. *Leadership.* This category examines how school board members and administrators create and sustain clear and visible quality values along with an administrative system to guide all activities of the school toward educational excellence. It also examines the institutional governance system and program to fulfill its legal, ethical, and social responsibilities.
2. *Strategic planning.* This category examines how the school's planning process and key quality requirements are integrated into overall business planning. It also examines how strategic goals and action plans are implemented and modified, and how progress is measured.
3. *Customer focus.* This category examines how the school engages its students and other stakeholders and how it listens to their voices, builds relationships with them and uses customer information to improve its products and services.

4. *Measurement, Analysis, and Knowledge Management.* This category examines the scope, validity, analysis, management, and use of data and information to drive quality excellence and improve competitive performance. It also examines the adequacy of the data, information, and analysis to support improvement of the school's customer focus, services, and internal operations.
5. *Workforce focus*. This category examines the key elements of how the school develops and realizes the full potential of its workforce to pursue quality and performance objectives. It also examines the school's efforts to build and maintain an environment for quality excellence conducive to full participation, and personal and organizational growth.
6. *Operations focus*. This category examines the systematic processes used by the school to pursue ever-higher quality and performance. It examines the key elements of process management, including design, management of process quality for all work units and suppliers, systematic quality improvement, and quality assessment.
7. *Results.* This category examines the school's performance and improvement trends in all key areas – student learning and process outcomes, customer-focused outcomes, workforce-focused outcomes, leadership and governance outcomes, and budgetary, financial, and market outcomes. It also examines current performance levels relative to those of world-class achievers.

CORE VALUES AND CONCEPTS IN THE BALDRIGE CRITERIA

The Baldrige criteria are built upon a set of core values and concepts which integrate overall customer and company performance requirements. These core values and concepts as applied to an educational setting are:

Customer-Driven Quality

Quality is defined by the customer, not the provider. A school's management system therefore must focus on product and service characteristics that bring value to the customer and lead to customer satisfaction. Such characteristics should differentiate the organization's products or services from competing offerings. Customer-driven quality is a strategic concept which is directed towards retention of customers and expansion in market share.

Leadership

Senior leaders or administrators must create for the school a customer orientation, clear and visible quality values, and high expectations. A substantial personal commitment and involvement is required to reinforce these values and expectations which extend to such areas as public responsibility and corporate citizenship. Through visible personal involvement, senior leaders serve as role models for everybody in the organization. They help reinforce the values set and encourage leadership at all levels of management.

Continuous Improvement

Continuous improvement should be the overriding theme in all that a school does internally and externally. It needs to be embedded in the way that the school functions. The term applies to both incremental and "breakthrough" improvements. Improvements may take any of the following forms: (1) enhancement of value to customers through new and improved products and services; (2) reduction in errors, defects, and waste; (3) improvement in responsiveness and cycle time performance; (4) improvement in productivity and effectiveness in the use of all resources; and (5) improvement in the school's performance and leadership position in fulfilling its public responsibility and serving as a role model in corporate citizenship.

Employee Participation and Development

All employees must work together to produce a quality product or service that meets customer requirements. This cooperative effort should be evident throughout the product's or service's life cycle, from initial design to final delivery. The success of the school depends increasingly on the skills and motivation of its work force. Employee success depends increasingly on the availability of opportunities to learn and practice new skills. These skills can be developed through investment in education, training, and other continuing growth opportunities.

Fast Response

A quality organization strives to provide a faster and more flexible response to customers' requirements. Improvement in this area often requires simplification of work organizations and work processes. Such improvement can be monitored by measuring the time performance of time processes.

Design Quality and Prevention

Quality should be built into the design of products and services and into the production processes. The costs of preventing problems and waste early during the design stage are much lower than correcting them "downstream." The organization needs to carry out stage-to-stage coordination and integration of functions from basic research to the delivery of final goods and services. Continuous improvement and corrective action need to emphasize intervention at early stages in processes for maximum overall benefits of improvements and corrections.

Long-Range Outlook

To achieve quality and market leadership, the organization needs to develop a strong future orientation and a willingness to make long-term commitments to all its stakeholders. A major part of the long-term commitment is the development of employees and suppliers, fulfillment of social responsibilities, and commitment to being a corporate role model. Over the long run, successful organizations are able to anticipate customer needs and expectations, technological developments, changing customer segments, evolving regulatory requirements and community/societal expectations, and strategic moves by competitors.

Management by Fact

Modern management must be based on facts, not anecdotal evidence. Objective data on customer satisfaction must be obtained from a variety of sources which include published surveys, third-party consultation, and customer satisfaction surveys. The use of data and analysis also involves the creation and use of performance measures or indicators. These indicators are measurable characteristics of products, services, processes, and operations that are used to track and improve performance. As part of the on-going improvement process, the measures or indicators themselves are evaluated and changed whenever necessary.

Partnership Development

Partnership development may be internal or external. Internal partnerships include the promotion of labor-management cooperation and the creation of network relationships among the different units of the organization to improve flexibility and responsiveness. External partnerships include cultivating relationships with customers, suppliers, and other business organizations to capitalize on each other's strengths and capabilities.

Corporate Responsibility and Citizenship

Corporate responsibility refers to what the community or society expects from an organization. The term encompasses business ethics and the protection of public health, public safety, and the environment. A quality organization goes beyond mere compliance in meeting all governmental laws and regulatory requirements. Corporate citizenship refers to an organization's leadership and support of publicly important purposes including corporate responsibility. These purposes might include environmental excellence, resource conservation, community services, and the like.

THE QUALITY CHALLENGE IN HIGHER EDUCATION

The practice of quality management is no longer new to higher education. In recent years, the literature has documented its value to higher education through the experiences of institutions that have embraced and implemented the philosophy. Tuttle wrote:[115]

> *Colleges and universities are under increasing pressure as a result of both external and internal forces. The environment is changing rapidly, and higher education finds that its management structure and its culture make change very difficult. Nevertheless, the forces are creating change in institutions at an unprecedented pace. A growing number of colleges and universities are embracing total quality for the same reasons that led industry and government to embrace it: Existing management systems are outmoded and can no longer ensure success in an increasingly competitive market.*

Although quality management has proven to be successful in business and military communities, its transition to education has been somewhat gradual. It had to be adapted to the unique traditions and operations of institutions of higher education. Lewis and Smith aptly described the environment which was conducive to the adoption of the quality management philosophy in higher education.[116]

> *Four assumptions reflect the environment in which higher education operates, now and in the future: (1) conditions and conventions within the environment are changing, (2) they are changing faster than they have changed in the past, (3) changes will continue to rapidly occur as we progress into the twenty-first century, and (4) sensitivity to these changes is imperative and their implications for colleges and universities must be anticipated.*

Attempts to implement the quality management philosophy in the educational setting have met some resistance especially from academic areas. Many of those involved in higher education believe that quality is already being practiced. However, there are a number of factors in the educational scene which challenge this assumption.

First, quality as it is traditionally defined in higher education is being challenged by many outside academia. Many colleges and universities still hold the historic view that they are the preservers, transmitters, and generators of knowledge. This view, however, conflicts with what the general public expects of their graduates with regards to the job-related value of higher education. Seymour commented that in the United States, "the disconnect is real between what our colleges and universities produce in terms of learning and outcomes in their graduates and what industry requires."[117] "We are buying instruction and service and higher education is selling research".[118]

Second, changing economic conditions have caused concern among the general public about career opportunities and economic well-being. John Akers, former chairman of IBM once stated, "Education isn't just a social concern, it's a major economic issue. If our students can't compete today, how will our companies tomorrow?"[119] There is real public concern about access to higher education as a means toward employment and economic security. In the past decades, tuition and other costs associated with higher education have increased substantially except in those countries where education is heavily subsidized by the government.

Third, students, parents, legislators, employers, and other stakeholders are bringing a customer orientation to their assessment of higher education. They "expect of higher education what they demand elsewhere: better service, lower costs, higher quality, and a mix of products that satisfy their own sense of what a good education ought to be".[120] The customer orientation has helped to facilitate the outcomes assessment movement in higher education.

Fourth, perception of quality in higher education has diminished. Many groups inside and outside of academia believe that this loss of confidence is partly due to the tendency of colleges and universities to protect their own disciplines and culture without sufficient regard to the requirements and expectations of their stakeholders. Chaffee and Sherr described this environment as follows:[121]

> *Every* [*U.S.*] *college and university is for quality. Every accreditation self-study documents quality. Every set of admission requirements promotes it. Every faculty member grades for it. Every promotion and tenure committee screens for it. Everyone is for quality.… Yet the last decade has brought unprecedented public demand for higher quality in colleges and universities.… External agencies and the public have lost confidence: We might be "for" quality, but in many eyes we do not "do" quality (brackets supplied).*

Lastly, higher educational institutions are beginning to realize that they are operating in an era characterized by increasing complexity, novelty, uncertainty, and advances in technology never previously imagined and experienced. These forces have helped to increase the gap between the quality desired by people and the quality of products and services being delivered. Technology enabled stakeholders to compare the quality of other educational systems with their own, subsequently causing the "quality desired" curve to rise at an accelerating pace.

QUALITY DEFINITIONS IN HIGHER EDUCATION

There are as many approaches to defining quality in education as there are in defining the quality of a manufactured product or delivered service.[122] The differences in the approaches make it very difficult to develop a common approach to educational quality. Before an assessment of quality can be carried out in higher education, it is important that its essential nature is basically understood. Green asserted that it is not possible to have "a single substantive definition of quality."[123] Bonvillian and Dennis noted that after decades of debating the virtues of quality in higher education, there are still no commonly accepted standards.[124] Although each person may have some understanding of what quality is, the concept is still difficult to explain. In many cases, quality has an elusive character and is often determined by how one believes his or her personal needs and expectations have been met. The following summarizes some of the different concepts that have been used to assess quality in higher education.

The Traditional Concept

Quality is traditionally associated with the provision of a product or service that is unique and outstanding and which bestows special status on the owner or user. Such high standards of quality can only be achieved at a great cost to the user. In higher education, the traditional concept of quality is often associated with most people's perception of the world's top-notch universities in terms of the "distinctive and special student experience that they provide, and in terms of the graduate and research output".[125] However, if all institutions of higher learning are to be judged by the same criteria used to judge the world's prestigious universities, most would be rated poor quality. This concept of quality is therefore not much of value in assessing quality in higher education as a whole.

Conformance to Specifications or Standards

According to this concept, a quality product or service is one that conforms to a specification or standard. The term "standard" is used as a "yardstick" or a basis for measuring a required characteristic of a product or service. Applied to higher education, this definition provides all institutions an opportunity to strive for quality as different standards can be set for different types of institutions.

This model has a number of drawbacks. It tells nothing of the criteria used to set the standards. A product or service which conforms to standards may still be perceived as having low quality if the standards are not in line with what the user considers as significant. The model is essentially static in that it implies that once a specification is set it does not need to be reconsidered. This is not however the case in the real world. As society changes, specifications or standards need to be revised to reflect new circumstances. The model also implies that standards are easily measurable and quantifiable. This may not be the case in higher education where the term "standard" may be defined in a different way. When used to mean "excellence or high standard" the definition becomes unclear. Green elaborates on this problem as follows:[126]

> *A concern that standards are dropping may be taken to mean either that the level of achievement required to pass a course has been lowered, or that students are achieving a lower level of performance even though the standard (in the more neutral 'yardstick' sense of the term) remains the same.*

It is therefore important that the term "standard" be defined and applied clearly when assessing quality in higher education.

Fitness for Purpose

This is the definition of quality adopted by most analysts and policy makers in higher education. According to this model, quality is gauged in terms of whether or not a product or service meets its stated purpose or purposes. This definition of quality has a number of advantages over the previous ones. First, it provides a means for determining the specification for a product or service. Second, it allows for reconsideration of the appropriateness of the specification over time. Third, it allows analysis of quality in higher education at various levels.

One drawback in using "fitness for purpose" as the definition of quality is the lack of consensus on what the purposes of higher education should be. Different interest groups may have different opinions on the issue. Another question is who should define the purposes of higher education. It is also possible for higher education to have multiple purposes some of which may be conflicting with each other.

Effectiveness in Achieving Institutional Goals

This concept focuses on evaluating quality in education at the institutional level. An institution is said to have high quality if it "clearly states its mission (or purpose) and is efficient and effective in meeting the goals that it has set for itself".[127] Each college or university determines its own definitions of quality and standards and establishes its own quality assurance system. It is then evaluated by an audit committee to check whether the institution is successfully achieving its stated aims and objectives. This model is broader than the "fitness for purpose" definition and includes other areas such as effective management and resource usage efficiency in the evaluation of quality in higher education.

Meeting Customers' Stated or Implied Needs

This definition of quality places high emphasis on identifying and meeting customers' needs. The customers' future needs are translated into measurable characteristics and then products or services are designed and delivered at a price the customer will pay. A number of difficulties arise from defining quality as meeting customers' needs particularly in higher education. Questions remain as to who is the customer of higher education or who should define quality in higher education. Taking the student as the customer poses a number of difficulties. Although students' needs can be easily identified and met, the quality of student experience goes beyond this. According to Green, "the heart of the education service is the relationship between the lecturer and student in the teaching and learning process."[128] Lecturers and students are both parts of the production process and are both producers and customers depending on the circumstances. Consequently, the standards of quality are difficult to state and to maintain. Another criticism is that students or customers in general may not always be placed to determine what quality is or whether it is present.

A Practical Definition of Quality for Higher Education

There is no single, all-encompassing definition of quality that meets the needs of all stakeholders in higher education. Different interest groups have different priorities and needs. Although their understanding of quality may differ, they may not necessarily be right or wrong. Quality therefore should not be considered as a unitary concept but a multiple one. Based on this concept, a school which may be considered a high-quality institution when evaluated according to one factor may be a low-quality one when gauged by another. Green suggested that "the best that can be achieved is to define as clearly as possible the criteria that each stakeholder uses when judging quality, and for these competing views to be taken into account when assessments of quality are undertaken."[129] Bergquist proposed that a comprehensive and useful definition of quality in higher education must include all four sets of criteria: input, output, value-added, and process-oriented.[130] These four sets of criteria must be considered equally important in developing a modern definition of quality for education.

Quality is the extent to which an institution successfully directs adequate and appropriate resources to the accomplishment of its mission-related outcomes and that its programs make a significant and positive difference in the lives of people associated with it and that these programs are created, conducted, and modified in line with the mission and values of the institution.

Quality Applications in Higher Education

It is not clear when or where the term total quality management was first applied to higher education. Gareth Williams noted that this phenomenon seemed to have happened spontaneously in different organizations in the United States and in the United Kingdom in response to some financial pressures on institutions of higher education. Schools have found themselves being increasingly required to behave like commercial enterprises in a fiercely competitive market.[131] There was also additional pressure from the government, especially in the United Kingdom, to provide mass education to students without corresponding increases in resources.

Total quality management was presumed to have entered higher education via four main routes.[132] One way was membership in the governing bodies of colleges and universities by business people who have had the first-hand experience of implementing the quality management philosophy in their own businesses. Corollary to this were the initiatives from the business sector toward the effective use of total quality in higher education. This is especially true in the United States. Since 1989, leading companies like Xerox, Procter & Gamble, Motorola, and Texas Instruments have sponsored Total Quality Forums for colleges and universities. The primary aims of these initiatives were twofold: "to encourage the application of total quality to teaching, curriculum, and research, with major initial emphasis on colleges of business and engineering," and "to encourage the application of total quality in running colleges and universities."[133]

The second route was via the Business Studies and Engineering departments of colleges and universities where the subject of quality management was taught. The academic staff saw the potential benefits of introducing this concept to the management of their own institutions. The third route, especially in Britain, was through explicit pressure on higher educational institutions by the government to provide mass higher education without corresponding increases in resources. Although the British government did not expressly advocate the use of quality management in higher education, its emphasis on quality in teaching and learning as well as on service efficiency and cost effectiveness favored management approaches that can readily be shown to deliver these outcomes. The fourth route may have been the rapid diversification of functions of colleges and universities. Traditional quality assurance approaches like informal peer review which often focused on regular award bearing courses and conventional academic research were often not adequate to attend to all these functions in the face of fiercely competitive and market-driven world of contract teaching and research.[134]

4 THE CUSTOMERS OF HIGHER EDUCATION

According to David Garvin, most definitions of quality were transcendent, product-based, user-based, manufacturing-based or value based.[135] The transcendent view states that quality is something that is intuitively understood but nearly impossible to communicate. You just know it when you see it.[136] The product-based view argues that quality is found in the components and attributes of a product. It implies that the higher the amounts of its characteristics, the higher its quality. The user-based says that if the customer is satisfied, the product has good quality. It is based on the presumption that quality is determined by what a customer wants. This leads to a definition of quality which is fitness for intended use or how well the product performs its intended function. According to the manufacturing-based view, if the product conforms to design specifications, it has good quality. Quality then is defined as the desirable outcome of engineering and manufacturing practice, or conformance to specifications. Lastly, according to the value-based perspective, if the product is perceived as providing good value for the price, it has good quality.

Towards the end of the 1980s, many companies have come to embrace a more customer-driven definition of quality.[137] Quality has come to be defined as meeting or exceeding customer expectations. In order to comprehend this definition, one must first understand the meaning of the term 'customer'. Most people think that customers are the ultimate purchasers of the product or service and are more specifically referred to as consumers. This type of customers may be referred to as external customers. But before a product reaches the consumer, it may first flow through a chain of many firms or departments, each of which adds some value to the product. It is thus important to note that every employee in a company also has internal customers who receive goods or services from suppliers within the company. Thus, understanding who one's customers are and what their expectations are is key to achieving customer satisfaction.

In higher education, the notion of having customers is foreign to many campuses. Even the suggestion of the term can arouse many emotions, preconceptions, and misconceptions.[138] Faculty and administrators alike are reluctant to call a student or anyone else a customer. They find the commercial flavor distracting and difficult to translate to education. In campuses that do admit they have customers, there is usually a general agreement that the term applies to businesses, government agencies, and the society at large. That is not generally the case with students. Many faculty members feel threatened by the notion that students are customers of the educational process. The idea that students (customers) are partners in developing and delivering quality education (the product or service) threatens the historic, traditional academic role of faculty as purveyor of knowledge. All too often this perspective is reinforced by administrative actions that tend to put the benefits of the institution before the needs of the student body.

Many educational institutions are very hesitant to consider themselves as customer-driven entities.[139] Yet one fact has been proven over and over again. Customer-driven organizations are effective because they are fully committed to satisfying, even anticipating customer needs. The future success of colleges and universities will increasingly be determined by how they satisfy their various customers. The successful ones will be those which very clearly identify their mission and the customers they serve.

WHAT IS A CUSTOMER?

The centrality of the customer is grounded in history and tradition. Aristotle, in his *Rhetoric*, stated that it is the hearer that determines the speech's end and object.[140] The success of the speaker therefore depends on the audience, the recipients of the message. The Bible teaches that "You shall love the Lord with all your heart, with all your soul, with all your strength, and with all your mind, and your neighbor as yourself"[141] and "just as you want men to do to you, you also do to them likewise".[142] This Biblical principle inspires us to give others the same regard we hold ourselves – a beginning point for the service-orientated individual.

The Wordsmyth Educational Dictionary defines the term customer as follows: (a) "one who buys goods or services; shopper, patron"; or, (b) "one who must be dealt with." In a normal commercial sense, definition (a) is probably sufficient. It involves the concept of exchange whereby two parties are willing to trade something for their mutual benefit. The (b) definition is broader and more informal and is suitable for academia. W. Edwards Deming, one of the founders of the modern quality movement, stated that the customer is one who gets your work.[143] Juran suggests that we follow the product to see whom it impacts. Anyone who is impacted is a customer.[144] These definitions are generally applicable to all kinds of organizations, profit or not-for-profit, which serve internal and external customers. "Every one of us is a customer. Every one of us serves customers".[145]

THE CUSTOMERS OF HIGHER EDUCATION

Lewis and Smith observed that every college and university has a mission but very few fully identify who they serve.[146] They also noted that even fewer institutions acknowledge that they serve customers. This was surprising given the fact that in order to be effective organizations must be customer-driven. Customer-oriented organizations are successful because they have a unified focus on what they do and who they serve.

The term customer can be defined as the recipient or beneficiary of the outputs of work efforts or the purchaser of products and services. It can be a person, a unit, a department, or an entire organization. Customers have wants, opinions, perceptions, and desires which are often referred to as the voice of the customer. The voice of the customer can also be defined in technical terms as the "standardized, disciplined, and cyclic approach to obtaining and prioritizing customer preferences for use in designing products and services.[147]

In order to understand customer needs, an organization must first identify who its customers are. Often customers are classified as internal or external. Internal customers are people or units who receive goods and services from within the same organization. Their outputs provide inputs to other functions and activities within the organization. External customers are those individuals or organizations which are not part of the organization in question but are nevertheless impacted by that organization's activities. They are the ultimate ones we are trying to satisfy with our work. The final recipient of a product or service is commonly referred to as the end-user or just plain consumer.

Internal Customers – Academic

The following may be identified as major internal customers of higher education on the academic side.

- **Students**. They are usually considered the most important internal customers of higher education. Students usually enter school with the desire to acquire skills, to gain knowledge and learn about the world around them. They need to develop the confidence and drive to pursue their dreams and desires. They also need to experience joy in learning both within the classroom as well as within the whole school environment.[148] Within the academic environment, students are unique in the sense that they assume different roles each of which has a different implication for improving the process of learning.

  - *Raw material*. This view suggests that we must understand students' backgrounds, attitudes and differences in academic preparation. This does not imply that students are passive recipients of the learning process. On the contrary, this view helps us to be more understanding of students and to be more sensitive especially to the differences in their preparation for the higher learning process.
  - *Work in process.* Once students are admitted, they go through a sequence of courses required for their degree. They are tested and graded at the end of each course and throughout the course of their academic programs.
  - *Product*: This view helps us to focus on the end result of the students' educational process and identify the relevant skills and information that they will have upon completing the process of a course. This product view does not suggest that students are passive recipients or outcomes of the learning process or methods. Rather this view aids us to match course content and activity with the desired educational outcomes.
  - *Co-worker*: This view compels us to look at the course being taught as a collaborative undertaking and to solicit student input when designing and redesigning course requirements and processes.
  - *Customer*: Students are appropriately viewed as customers in the sense that they are beneficiaries with needs that should be satisfied. This view does not imply that they are the ultimate arbiters of quality in the commercial sense. We recognize that many of them when they enter college or university do not have a good understanding of what is best for their professional preparation. However, students are well-equipped to evaluate an educational delivery system, although they may not be qualified to give input as to its content.

The status of students within the academic program is somewhat unique. Their ability to interact with the rest of the system further complicates the relationship that exists between them and their professors. When it comes to the delivery of knowledge, instructors are the suppliers and students are the receivers-customers. But students are also expected to learn the material presented by their professors, do assignments, complete projects, and prepare for tests. In this part of the academic process, students function as co-workers or co-laborers. Thus, no one should be surprised if students are quite happy when classes are cancelled or dismissed early. When it comes to this matter, students do not behave like typical customers. Their co-worker role outweighs their customer role.

While students may be considered primary customers for the delivery of course material, they may not be treated the same for the content of the course. Deming argues against the practice of conducting exit surveys to obtain feedback from new graduates to restructure course content.[149] How could a student know what to teach? His or her ideas may be worth listening to 10 to 15 years from now. As a matter of fact, the ultimate outcome of a student's education is not known until many years later.[150]

- **Faculty**. Teachers are entrusted with the solemn responsibility of preparing the students of this nation for the future. They deserve recognition and respect for what they do and less blame for what the system does or fails to do. Teachers need continued professional growth opportunities and the tools and autonomy to accomplish their tasks and experience joy in work. Such opportunities will greatly enhance their self-esteem and allow them to have pride in their work. Also, professors teaching particular classes require that students have adequate background in the prerequisite courses. Perhaps one of the most pressing needs of teachers today would be adequate compensation for their work besides recognition and respect.
- **Programs or departments**. The academic subsystem, as part of the larger system of higher education, consists of its own set of input resources, the transformation process, and outputs. Its resources include, but are not limited to, students, faculty, staff, library, computing and laboratory facilities, and other facilities. The transformation process consists of activities done to disseminate knowledge, to conduct research, and to provide community service. It is in the transformation process where interactions among the input resources occur. Thus, the need for cooperation and collaboration between programs or departments in the performance of the various tasks. Effective communication and information exchange is also necessary within the academic subsystem and between the academic system and the administrative subsystem. The outputs of the academic process are educated people, research and publications, and service to the community. Programs or departments need to be engaged in the never-ending process of quality improvement.

Internal Customers – Administrative

The following may be identified as major internal customers of higher education on the administrative side.

- **Students**. They are clearly the primary internal customers of many facilities in the campus. Students pay for the use of many facilities such as dormitories, food services, bookstores, libraries, gymnasiums, security services, and others. These facilities help to attract better students, provide a more satisfactory campus climate and support the academic programs of the institution. In the non-academic setting, students are treated as typical customers by providing them services when they request for them and answering their queries when they ask for assistance.
- **Faculty**. Teachers benefit from the use of certain facilities in the campus like the bookstore, the library, the computer store, the postal office, the health club, the swimming pool and other campus facilities. Also, they benefit from services offered by other departments like the Human Resources office, the transportation department, the administrative offices, and others. Teachers expect that they be treated as typical customers by providing them services which are requested and by answering their queries promptly and accurately.

- **Non-teaching staff**. The needs of the non-teaching staff are to an extent similar to those of the faculty. They seek continuous personal growth, security, and joy in work. They need to be kept informed and involved and shown how they are part of the bigger system of higher education. The institution must help them develop and realize their potential in pursuing their quality and performance objectives. They are considered as assets to be developed, not expenses to be controlled.
- **Administrators**. Like the faculty, administrators expect improved professional status, proper recognition for their work, and reasonable compensation for their efforts. To perform their job more effectively, they need support and feedback from all constituents of the educational system in providing constructive solutions to common problems faced by the institution.
- **Units, departments or divisions**. The needs are similar to those of programs or departments in the academic subsystem. Units, departments or divisions within the administrative subsystem must work as a team together and in conjunction with the programs and departments in the academic subsystem. Barriers between them should be broken down to allow for effective communication and information exchange. They must be engaged in the never-ending process of quality improvement.

External Customers – Direct

The direct external customers of higher education include future employers of students, other colleges and universities that students attend to further their education, and suppliers from which the college or university receives students, goods, or services.

- **Employers**. It is fairly reasonable to say that service and manufacturing industries and other non-for-profit organizations are the largest direct volume customers of higher education.[151] Employers expect colleges and universities to produce well-qualified and trained graduates who could work efficiently and effectively in the jobs for which they have been hired. They need workers with communication and problem-solving skills and willing and able to learn their specific jobs quickly and effectively.
- **Other colleges/universities**. Colleges and universities which admit students from other higher educational institutions require that these students possess enough knowledge, skills and preparation to take up further or higher studies. In other words, they want students who are capable of advanced learning and research.
- **Suppliers**. Suppliers include those from whom a college or university receives students, goods, or services. They include high schools or academies as well as those organizations that supply goods and/or services to the college or university. Suppliers need feedback from the recipients of the goods and services that they provide in order to improve the quality of their production processes. They also seek to build a long-term relationship with colleges and universities based on loyalty and trust.

External Customers – Indirect

The indirect external customers of higher education include governmental bodies, communities served, accrediting agencies, alumni, and donors.

- **Government**. Federal tax policies affect higher education in terms of research support and financial support for students attending colleges and universities. As a condition for federal spending and tax support, legislative and executive agencies of the government impose a variety of rules and mandates on both institutions and students. The impact of the federal government on higher education is substantial, diverse, and constantly changing.[152]

  State governments are a major source of funding for their respective state institutions. Thus, they have legitimate interest in the responsiveness of higher education to major societal needs. While institutional autonomy is important, there is need for constructive relationship between the college/university and the state. Higher education recognizes that it has a stake, if not responsibility, to engage with state political leaders regarding the nature of their relationship. This includes defining those societal goals toward which the college or university should direct its energies and shaping the policies which govern such relationship.[153]

- **Community**. Community support is crucial to the success of the operation of higher education. Community outreach and programs strengthen overall institutional effectiveness in preparing tomorrow's students for lifelong involvement.[154] University support for student and faculty opportunities to volunteer and perform community service leads to enhanced civic responsibility. In addition to these services, colleges and universities are expected by their communities to contribute to the development of a competent workforce, the training of leaders and followers, and the nurture of politically active and civic-minded citizens.
- **Donors**. The process of asking for gifts begin by informing potential donors of the social need being met by the organization, involving them in the work of that organization and then inviting them to invest financially in that work.[155] The donor usually offers something of value to the organization for a variety of reasons, without expecting any material or monetary return. Naturally, donors expect that they be informed about the legitimacy of the need and be given appropriate acknowledgement for making a donation. The college/university can acknowledge the gift by recognizing donors for their support of a worthy cause, by helping them feel that they made a difference in the resolution of a problem and by giving them a sense of ownership in a program that serves the public good.

- **Alumni**. In many ways, the college or university connects with the society at large through its alumni. The real success of its programs is often judged by how well its alumni represent its values in their everyday lives and in their lines of work. One way this connection can be strengthened is through programs which bring alumni to the campus in a participatory way. It is a known fact that alumni are a significant source of financial gifts for the institution.
- **Accrediting agencies**. Accreditation provides public notification than an institution or program meets standards of quality stipulated by the accrediting agency. To be recognized by the accrediting agency, the institution or program is committed to self-study and external review by one's peers not only to meet standards but to continuously seek ways to enhance the quality of its education and training. Accrediting agencies expect accreditation-seeking institutions to comply with their established criteria and standards.

DEVELOPING A CUSTOMER FOCUS IN HIGHER EDUCATION

It is important for an organization to clearly identify its current and potential customers because failure to identify them results in wasted efforts and even failure in the entire quality initiative.[156] It is highly desirable that different groups within higher education come to a common consensus as to who their true customers are. For the total quality philosophy to have a lasting impact on change and quality improvement in higher education, the latter must have the right customer-focus model to follow.

While students can be considered customers of higher education, they differ from the typical business customers in a number of ways. For example, colleges and universities often admit students selectively based on certain academic standards and requirements. Businesses usually do not do that. In fact, they do not ordinarily prevent prospective customers from purchasing their products and services. Moreover, in higher education, students often do not totally pay for the full cost of their tuition and fees. These expenses are sometimes covered by payments from parents, state subsidies, scholarships and student loans. In business, customers generally pay for their purchases with their own funds. Another difference is that once students are admitted they are continually tested and graded to determine how well they have learned their lessons. They must maintain their good academic standing in order to be able to take more advanced courses and complete their programs of study. Businesses do not do that to their customers.

Identifying the customers of higher education is important in order to know how to proceed in establishing a feedback mechanism. Establishing a feedback mechanism is accomplished through a systematic, factual collection of data from customers so that we truly know whether or not the job is done right. The data that is collected should be used responsibly, that is, to resolve problems; otherwise, there is no valid reason to gather it. Information gathered should be used solely for purposes of continuous improvement within an environment of trust. This takes courage since it signals that one is serious about not doing business as usual.

> *The great enemy of courage is not cowardice, but conformity. The vast majority of people yield to the pressures of conformity because it is safe. It is unconventional to set your sights high, to climb out of ruts. That takes courage.*[157]

An institution committed to customer satisfaction and continuous improvement will need to work with students, faculty and staff and other customers to understand current expectations and to anticipate future requirements. The college or university needs to establish trust within the entire organization where frank and open discussions are allowed, where opinions are respected, and where participants are empowered to take corrective action on poor processes and express their true feelings about tasks, processes, and systems that are out of control and requires urgent attention and solution.

Educational institutions that truly believe in the quality of their services make strong commitments to their customers. They address the principal concerns of customers, eliminate conditions that might weaken their trust and confidence and communicate clearly and simply to them. Building good customer relationships depends on the quality of customer-contact personnel. This begins with the recruitment process and the selection of employees who show the ability and desire to develop good customer relationships. These customer-contact employees must understand their products and services well enough to answer any question, develop good listening and problem recovery skills, and feel able to handle problems. Their actions are guided by a common vision and a clear understanding of what actions they may or should take. Educational institutions need to establish service standards and communicate these standards to all customer-contact personnel. These standards must continually be reinforced. Colleges and universities should implement a process for tracking adherence to the standards and provide feedback to employees to improve their performance. But despite all efforts to satisfy customers, every institution experiences unhappy customers. Customer-contact personnel must be trained to deal with angry customers, to listen carefully to determine the customer's feelings and understand the complaint, and to make every effort to resolve the problem quickly. Information collected from the complaint resolution process should be used to continually improve service processes.

Customer satisfaction is perhaps the most important element in managing for quality in higher education. It is often used synonymously with quality which focuses on meeting and exceeding customer expectations.[158] Bergquist lists four sets of criteria by which quality could be defined and assessed.[159] These criteria are described as follows:

- **Input criteria**. These criteria focus on the nature and level of resources available to the institution like the characteristics of incoming students, credentials of faculty, size of library, structure and availability of physical facilities, and the amount of financial reserves. For many years, the input criteria have been the most commonly identified measures of quality. Many accrediting agencies have used input measures to measure quality like the quality of entering students, number of books in the library, quality of graduate degrees held by faculty, number of square feet of classroom space, student-faculty ratio, and others. Many people believe that if you put good things together, something good will come out of it. This concept of education is often associated with traditional high-status institutions.

- **Output criteria**. These criteria stress the nature and extent of institutional products, characteristics of graduating students, success of alumni, research and scholarly publications, and public service. They build on the assumption that institutions of higher education are accountable to society for what they produce. In recent times, the reputation and quality of educational institutions are increasingly being determined on the basis of their demonstrated outcomes.
- **Value-added criteria**. These criteria zero in on the differences that an institution has made in the growth of all of its members: intellectual, moral, social, vocational, physical, and spiritual. Considering these criteria, an institution would be judged by "the extent to which it is effective in developing the talents of its students from whatever level they are at when entering".[160]
- **Process-oriented criteria**. These criteria include the level and manner of participation of all appropriate constituencies (or customers/stakeholders) in the educational, administrative, and governance processes of the institution, including the defining and assessing of quality. Based on these criteria "it is not what we do or what we accomplish that makes for quality; rather it is the way in which we do what we do and ho we decide what to do that differentiate a high-quality education".[161]

There is no single, all-encompassing definition of quality that meets the needs of all customers in higher education. Quality therefore should not be considered as a unitary concept but a multiple one. Green suggested that "the best that can be achieved is to define as clearly as possible the criteria that each stakeholder uses when judging quality, and for these competing views to be taken into account when assessments of quality are undertaken."[162] Bergquist proposed that a comprehensive and useful definition of quality in higher education must include all four sets of criteria described above: input, output, value-added, and process-oriented.[163]

Developing and maintaining a customer focus in higher education requires effective leadership. After all, leadership 'is the use of non-coercive influence to shape the group or organization's goals, motivate behavior toward the achievement of those goals, and help define group or organization culture'.[164] Leaders are part of a system and they are affected by the system in which they work. They perform tasks that are essential for others to accomplish their purpose, which in this case, is quality improvement and customer satisfaction. As quality increases, so will the pride-in-workmanship. The end result will be that a new institutional culture will emerge, one in which working becomes fun.

5 THE SYSTEM OF HIGHER EDUCATION

Over the years, a number of colleges and universities have made substantial commitments to the total quality effort. However, the percentage of higher educational institutions engaged in long term efforts to measure and improve quality seemed to be relatively small.[165] From 2001 to 2016, only three post-secondary institutions have received the Baldrige Award: University of Wisconsin-Stout (2001), Kenneth W. Monfort College of Business (2004), and Richland College (2005). It could be that educators, political groups, and even the public have often been slow to address the problem of educational decline on a systematic basis. Also, academia has seen many management fads come and go that it is not surprising for faculty and staff to be skeptical of any new management approach that crosses their paths.

Deming has lamented the "climate of competition that takes place between people, teams, departments, divisions, pupils, schools, universities".[166] This situation still exists today. Contrary to popular opinion, competition as it exists in organizations and industries is destructive. The preferred environment is where everyone works together as a system to achieve the aim of that system. Furthermore, what is needed is collaboration and transformation towards a new style of management. The management and improvement of higher education can benefit from the application of the same principles that are used to improve any process in manufacturing or service sector.

A SYSTEM OF PROFOUND KNOWLEDGE FOR HIGHER EDUCATION

The prevailing style of management in higher education must undergo transformation. This transformation means change of form, shape, or appearance. Perhaps a better word to use is the Greek word *metanoia* which means penitence, repentance, reorientation of one's life or spiritual conversion. This transformation requires an understanding of the system of profound knowledge and the application of its principles in every kind of relationship between individuals. Deming's system of profound knowledge includes an appreciation for a system, knowledge about variation, theory of knowledge, and psychology.[167]

Appreciation for a System

A system is a network of interdependent components that work together to accomplish the aim of the system.[168] The apostle Paul in the Bible understands the meaning of a system. "For as the body is one and has many members, but all the members of that one body, being many, are one body…".[169] The systems view states that the quality of a product or service depends on the "interactions of several variables, such as machines, labor, procedures, planning, and management".[170] The system cannot be managed well by simply managing the parts in isolation. Management should therefore "focus on the interactions of parts and of the system with other systems, rather than the action of parts taken separately".[171]

Developing the Aim of the System

A system must have an aim that is clear to everyone in the system. The absence of an aim precludes the existence of a system. An example of an aim is the institutional mission. With respect to the aim, Deming calls for a constancy of purpose toward improvement of product and service with the aim to become competitive, stay in business, and provide jobs.[172] When this constancy of purpose is understood, everybody gains, whether they are stockholders, employees, suppliers, customers, community, environment, etc. The aim of the system must also include plans for the future. The administration may alter the course of the institution in anticipation of the needs of customers for new products or services. The institution needs to continually scan the environment for innovation opportunities: new product, new service, or a better method. Where will the institution be five or ten years from now? The administration must be willing to commit resources over the long term to ensure that the quality job is completed. Preparing for the future also includes lifelong learning for employees since quality improvement will not happen overnight. It requires time to be effectively in place in the educational institution.

Collaboration and Aim Optimization

The management of the system requires knowledge of the interrelationships between all the components within the system and of the people that work in it. The obligation of every component is to help optimize the aim of the system. The efforts of all components of the higher educational system must be orchestrated or managed towards achieving its stated aim because, left to themselves, components tend to become selfish, competitive, independent profit centers. It is important for people within the college or university to know what their jobs are and how they should interact with one another as part of a system. It is important for them to see how their work fits in with the work of others in the system.

The greater the interdependence between components, the greater will be the need for communication and cooperation between them. It is important for the administration to recognize and manage the interdependence between these components. It is the responsibility of the administration to resolve conflicts and remove barriers to cooperation. Take for example the efforts of the various schools or faculties in a college or a university. These efforts are not additive but interdependent. One school, in order to achieve its goals (which may require a bigger slice of the institutional budget) may, left to itself, kill off another school. The obligation, therefore, of every component in the college or university is to contribute its best to the optimization of the aim of the higher educational system. For example, when schools or departments plan for the next fiscal year and send in requests for budget allocations, they should take into account how their plans can help advance the mission of the college or the university as a whole instead of simply catering to the narrow interests of their respective units. Simply focusing on their own narrow interests (e.g. fighting for a bigger slice of the budgetary pie to support new programs) can lead to in-fighting and result in eventual loss to all the components of the said institution.

The principle of a system calls for collaboration between people in the institution and between institutions. A system of education, for instance, may include pupils from pre-school on up to the university. Various groups in academia should work together to achieve its aim which is to help children grow and develop and prepare them to contribute to the prosperity of society. When institutions as well as institutional participants work together to optimize the aim of the system, everybody wins. The principle of a system also applies to joint efforts by competitors to expand the market and to provide better service to customers. When competitors, for instance, join hands to lower costs and to protect the environment, among others, everybody wins. If competitors expend their time and energy trying to expand the market (and not merely worrying about market share) by serving untapped segments or niches, they would all gain.

The Systems View of the Production Process

The system of production can be viewed by the use of a simple flow diagram in Figure 5.1.[173] The flow diagram begins with predicting the need of the customer. This prediction leads to the design of the product or service then to actual production and then the observation of the use of the product in the hands of the customer. Feedback data obtained from this observation leads to redesign. The cycle goes on and on resulting in a process of continual learning and adjustment.

The Systems View of Production

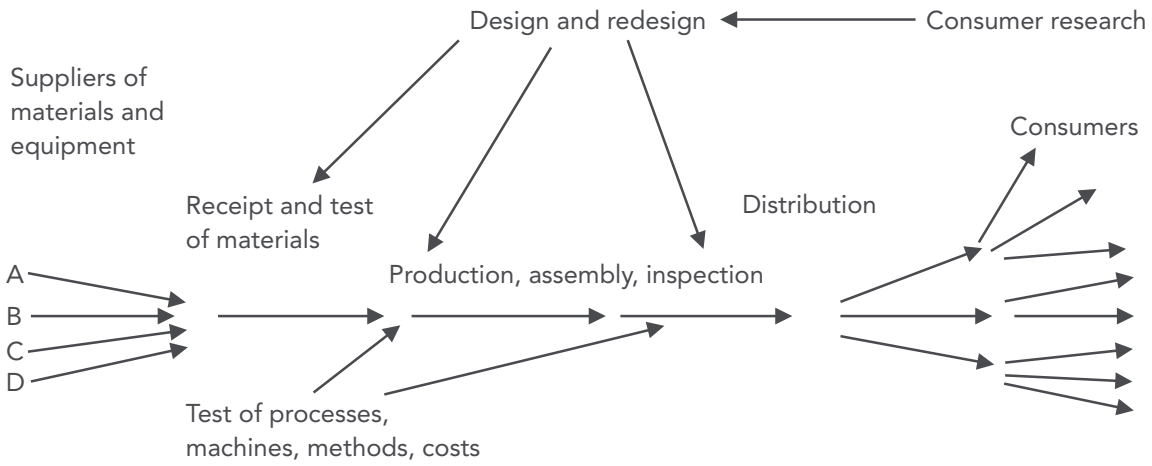

Figure 5.1

The flow diagram describes the flow of materials and information from the beginning of the system to the end where they emerge as a usable product or service. As they flow through the system, these materials and information must match the input requirements of the stages down the production line. The flow diagram shows how each one's work fits with the work of others in the system. It also shows how a proposed change in one or more components affects other parts of the system. In some cases, the effect of a proposed change may not be felt until months or years later. The immediate net effect may be zero or even negative. A good example would be training. Its cost immediately shows up in the ledger. Its benefits, however, may not be realized for some time in the future. Nevertheless, the organization continues to invest in training because administrators believe that in the future the benefits will outweigh the costs. Management, in this case, is guided by theory, not by figures. Another example is the attempt to cut costs by unscrupulously firing employees. This action may immediately yield results in the positive direction by lowering costs but in the future, it may have adverse consequences such as low employee morale and lack of competent and experienced employees to take on new positions when the company is poised for expansion.

Destruction of a System

If each component in Figure 5.1 becomes competitive with other components, the system will be ruined causing loss of unknowable magnitude to the entire system and subsequently to all the components that comprise it. Left to themselves, individual components will tend to advance their own interests at the expense of the entire system. To achieve its own goals, one department may, left to itself, ruin another department.

Table 5.1 shows how plans developed in one school may affect other schools and the entire college or university. Plans are developed without any regard to how they may affect other schools. Plans that are beneficial to one school may be detrimental to other schools. In this example, the net effect on the entire institution is negative.

Schools and Their Plans	Effect on School A	Effect on School B	Effect on School C	Net Effect on the Institution
School A				
Plan 1	+	-	-	-
Plan 2	+	-	+	+
Plan 3	+	-	-	-
School B				
Plan 1	-	+	-	-
Plan 2	+	+	-	+
School C				
Plan 1	+	-	+	+
Plan 2	-	-	+	-
Plan 3	-	-	+	-
Net Effect of Adopted Plans	++	----	0	--
Distribution of Benefits	-0.67	-0.67	-0.67	-2

Table 5.1 The Effect of Plans Developed in One School on Other Schools and the Entire Institution

This illustration shows a net effect on the entire institution of two negatives. If this is interpreted in monetary terms, this could represent, for example, a loss of $2 million. If this amount were to be distributed equally, each school would suffer a loss of about $670,000.

Table 5.2 illustrates how a college or university can maximize benefit to itself by acting only on those plans that have predicted positive impact on the institution as a whole. In this case, everybody wins including schools that take a loss for the benefit of the whole institution. Of course, this requires enlightened top administration. In Table 5.2, the net effect on the whole institution is three positives. This can translate to a net benefit of $3 million for the institution. Assuming that the benefits are distributed equally, each school would receive a benefit of $1 million. Table 5.2 shows that some schools can operate at a loss to themselves in order to optimize the aim of the entire institution, including the schools that take a loss. This requires collaboration among schools.

Schools and Their Plans	Effect on School A	Effect on School B	Effect on School C	Net Effect on the Institution
School A				
Plan 1	+	-	-	-
Plan 2	**+**	-	**+**	**+**
Plan 3	+	-	-	-
School B				
Plan 1	-	+	-	-
Plan 2	**+**	**+**	-	**+**
School C				
Plan 1	**+**	-	**+**	**+**
Plan 2	-	-	+	-
Plan 3	-	-	+	-
Net Effect of Adopted Plans	**+++**	-	**+**	**+++**
Distribution of Benefits	1	1	1	3

Table 5.2 The Effect of Plans Developed in One School on Other Schools And the Entire Institution under Enlightened Administration

Knowledge about Variation

There will always be variation between people, in output, in service, and in product. It is important to understand what the variation is telling about the process and about the people that work in it. In fact, life is variation. All educational work occurs within a system of interconnected processes, which contain many sources of variation. Variation means the extent to which or the range within which a thing or a process varies. For example, the professors working at a school have different upbringing, educational backgrounds, and working experiences, which makes each one unique in terms of personality and values. They work with different students, each with a unique personality. They interact with various individuals (other professors, administrators, and staff) on campus. They perform different kinds of tasks. They often utilize a variety of resources (e.g., textbooks, reference books, notes, writing instruments). Their work involves the use of different kinds of equipment, with varying features, capability, and performance. They work under different supervisors, who may have a variety of management styles. They are also affected by many environmental conditions that exist at home, in their classrooms and laboratories, and within the institution as a whole (e.g., family relationships, noise level, the collegiality of the work environment, morale level, weather patterns, etc.).

The complex interactions of these variations are not easily understood. Variation due to these sources occurs randomly. However, their combined effect is presumed to be stable and predictable. The factors that are present as a natural part of the process are referred to as *chance* or *common causes of variation*.[174] Thus, a process that is being affected by this type of variation is said to be a stable process (which should not be tampered with) and is referred to as being *in control*. Common-cause variation comes as a result of the design of the system. It is inherent in a process and generally accounts for about 80 to 95 percent of the observed variation in the outcome of that process. It is important to note that even in a stable process, quality improvement can still be undertaken to reduce the variation that arises from common causes.

The other type of variation that may exist in an educational process results from *special causes*. Special causes can be attributed to external sources that are not inherent in a process. They produce unnatural variation that disrupts the random pattern of common causes. Thus, they tend to be readily detectable and, with foresight and commitment, can be prevented or corrected. When special-cause variations are present, the process is said to be *unstable* or *out of control*. Some examples of special-cause variations in education that could affect the performance of professors are the hiring of unqualified, incompetent, or untrained administrators, faculty, or staff; the admission of students who are unprepared to do college/university work; malfunctioning equipment; inadequately equipped laboratories and libraries; dysfunctional interpersonal relationships; management by fear; a professor's serious illness or accident; excessively warm or cold classroom temperatures; a food poisoning episode in the cafeteria; campus crime or civil unrest; extreme climactic changes; flooding, fire, or natural disaster; and many others. In general, these special-cause variations have an unpredictable effect on the outcome of teaching and learning and can seriously affect the educational system as a whole. Therefore, whenever possible, they must be identified and prevented, remedied, or resolved in a timely manner.

Theory of Knowledge

Managers and leaders of colleges and universities need to understand how things work and why decisions that affect the future of their respective institutions should be effective. Any plan, no matter how simple, requires prediction concerning conditions, behavior, and comparison of performance. Such predictions should be grounded in theory. For example, if the university raises its tuition fees for the next academic year, how much should the fees be raised? How will it impact the financial condition of the university? This requires a theory of cause and effect. According to Deming, knowledge is not possible without theory and experience alone does not establish a theory.[175] Deming further states that rational prediction requires theory and builds knowledge through systematic revision and extension of theory based on comparison of prediction with observation.[176] Theory helps one to understand cause-and-effect relationships that can be used for prediction and rational management decisions. Without theory, experience teaches nothing. Without theory, there are no questions to ask. Therefore, without theory, there is no learning.

Psychology

Psychology helps us to understand people, interaction between people and circumstances, interaction between customer and supplier, interaction between teacher and student, interaction between a manager and his people and any system of management. Much of Deming's work focuses on understanding human behavior and treating people fairly. A true leader recognizes that people differ from one another and learn in different ways and at different speeds. He also understands that people are born with a need for love and esteem in their relationships with other people. Deming argues that fear does not motivate people. This fear can be manifested in various ways: fear of reprisal, fear of failure, fear of the unknown, fear of relinquishing control, and fear of change. Workers may refuse to report quality problems because they might be blamed for problems in the system. If people in the organization do not enjoy their work, they cannot be productive as they should be.

IMPLICATIONS FOR HIGHER EDUCATION

Deming believes that an understanding of his "profound knowledge" will result in the transformation of management in an organization. Such transformation, however, requires leadership in colleges and universities. This means having the knowledge, the personality, and the persuasive power to influence administrators, faculty, and staff to accept the proposed change and to make it happen. Everybody in the college or university needs to understand that the efforts of schools, faculties, departments, and units are not additive but interdependent. In view of this, each part of the institution has an obligation to contribute its best to optimize the aim of the system. Simply doing the best for individual components amounts to sub-optimization and results in losses to everybody in the system. A well-optimized institution is like a good orchestra which is judged not so much by how many brilliant players it has but by the way the players work together. All the institutional members are there to support each other to deliver quality products and services to its constituents. Pitting individuals or schools or departments in the college/university against each other for resources is self-destructive to the institution because the individuals or departments involved will simply strive to maximize their own expected gain at the expense of the entire institution. Optimizing the aim of the college or university requires internal cooperation of all its components.

Managing the institution of higher education requires knowledge about the interaction of forces (individuals, schools, departments, units, etc.) within the system. This knowledge comes from theory as discussed earlier in the chapter. Good management also requires an understanding of how the system affects individual performance. For example, many factors in an educational system affect the individual teacher's performance. These include the training each one has received, the amount of work and nature of tasks performed, the information and resources provided, the type and number of students taught, the type and number of people worked with, the leadership exhibited by supervisors and administrators, everyday disruptions on the job, the fairness of management policies and practices, and other environmental conditions (e.g., noise, low morale, poor food in the school cafeteria). Few performance evaluations recognize such factors, often placing the blame on individuals who have little control over their environment. Pitting individuals or departments or schools against each other for resources or for rewards is destructive for an educational institution, as it encourages people to focus on maximizing their own expected gain, not the betterment of the institution. In such a stress-filled environment, performance targets or arbitrary cost-reduction goals will not motivate anyone to improve the system or customer satisfaction; these employees will act only to meet their own goals or targets at the expense of the institution.

It is important to recognize that people are different from one another. They learn in different ways and at different paces. They respond differently to intrinsic and extrinsic sources of motivation. Administrators and supervisors, therefore, must be aware of these differences in helping their employees boost their individual capabilities and work productivity. Thus performance evaluations that serve to rank people are deeply flawed. When individuals in a group are ranked, one will always be at the top and another one will always be at the bottom. The same is true with ranking departments. What does it mean to be an above-average, average, or below-average worker? What do these differences mean? They may not mean anything at all. Evaluating these differences requires knowledge which includes a deep understanding of the institution as a system, the interaction of various components, and the existence of variation in different processes.

6 QUALITY, ETHICS, AND MORAL LEADESHIP

The news media have been rife with stories of ethical failures by organizations, business and non-business like. A prominent example was the Enron scandal which came to light in late 2001 as the company applied for bankruptcy.[177] Another serious indictment fell on Arthur Andersen, an accounting firm which went bankrupt after it was accused of fraud and complicity in the Enron debacle. Eventually many other scandals were exposed to the public since 2002. They involved many such big names like WorldCom, Global Crossing, Tyco and Adelphia. Since that time, other corporate names have appeared in the news either for allegedly violating the public trust or for raising questions about ethics.

During the 1980s, American industry was compelled to undergo a painful process of transformation in response to shrinking sales and market shares.[178] Seeking answers for these problems, business firms have come to realize that something must be done about their formal basic values and policy. Over the years, they have built and accrued structures that were big, sluggish, control-based and bureaucratic. This structural phenomenon was not limited to the corporate world alone. Health care, government, and education also faced similar problems. These complex unwieldy structures produced an environment vulnerable to the occurrence of unethical events.

Sheer necessity forced many of those businesses to reinvent themselves to become leaner and more agile organizations. Many jumped on the quality management bandwagon which was an outgrowth of Deming's work in Japan after World War II.[179] The goal was to reinvent the American business firm, revolutionize the American industry and achieve, if not surpass, Japan's economic achievements. Alas, while some successes have been documented, many quality management projects turned out to be embarrassing failures.[180] Some say that the implementation failure rate is high, even as high as 70 percent.[181] The literature is replete with books and articles that cite many reasons for these failures. The most frequently cited reason for the failure is the lack of viable commitment from management.[182] Oftentimes management is reluctant to change their paradigms or old habits. Managers fail to realize that quality improvement starts with them, that they must lead by example if they have to cause others to behave differently. They also fail to understand that quality management requires a change in the roles, responsibilities, and behaviors of every participant in the organization starting with the leadership.

Unless substantial behavioral change is noticed, quality management will be seen merely as a rhetorical program instead of being an action-oriented program. But how is this substantial behavioral change accomplished? If management must lead by example, then they must lead in a way that cultivates a high level of trust and respect from their subordinates. The top leadership of an organization must model ethical and moral conduct. To sustain the quality initiative in the organization, top management must demonstrate commitment by displaying consistently high ethical standards and by cultivating a high level of trust and respect from members, based not just on stated values but on their willingness to make personal sacrifices for the sake of upholding these values.[183]

This chapter explores the link between moral leadership and the successful improvement of quality in organizations. How can ethics help an organization to avoid failures and improve organizational quality? Can quality be achieved or sustained in an immoral, corrupt or dishonest system? Is ethical and moral leadership the most critical variable that leaders must have to influence organizational behavior and performance?

MORAL LEADERSHIP AND QUALITY MANAGEMENT

Moral leadership is determined by what comes from within a person: what a person is and not adherence to a set of behavioral standard. People can be trained to apply policy and behavior. This is only half the equation. The moral leader is more than a person who is conditioned to follow rules or policies. Moral leadership is *what one is* as opposed to *what one does*. What one is flows directly from the values he or she possesses. Values are things or principles preferred. The values of an individual, group, or society are standards of desirability and evaluation independent of specific situations. They are what humans want and feel to be the reason for existence. Values regulate the political process and the managerial process and lie at the heart of resource allocations. They are the lenses and filters through which the world is viewed. Codes of ethics created by individuals or organizations come from values. Religions, cultural and social norms, philosophies and legal systems are the sources of values. The bottom line for moral and ethical leadership is doing what is right.

Two weeks before his death on August 18, 2001, Philip B. Crosby, one of America's quality management pioneers, said*, "Quality boils down to one word – integrity".* He made that comment to Hylan Lyon, an Aerospace Technology Working Group colleague of one of the authors of this book, which was shared with the author in Arizona on April 9, 2006. When the father of *Zero Defects, Do It Right First, Quality is Free, The Price of Nonconformance,* who had a full career of quality management leadership, practice, teaching and consulting, makes that one of his last thoughts, it should be taken seriously. With the Enron debacle and other highly-publicized scandals in the recent past, integrity in doing business is becoming a precious commodity. Integrity boils down to honesty – honesty in dealing with customers, employees, suppliers, and other stakeholders. The quality sciences have transformed the world of business over the past sixty years since Dr. W. Edwards Deming and Dr. Joseph Juran taught its principles to Japanese industry following World War II. Continuous improvement is now firmly imbedded in corporate strategy.

Quality management implies a holistic view of the organization and its relations as well as a procedural approach by continuously developing all activities further to increase customer satisfaction. It claims that customer satisfaction is a central value with absolute priority and assumes that achieving customer satisfaction also implies optimal economic results. Its totality aspect means that all activities of the organization are included in the optimization process, whether procedures, staff, management, suppliers, and customers. Its quality aspect refers to the objective of increasing the efficiency and effectiveness of the company operations. Its management component aims at bringing the entire company in line with customer expectations, that is, to produce goods and services adapted to the customer's requirements. It also requires the continuous restructuring of the organization's procedures and checking for redundancies, inefficient procedures and other deficiencies. The quality management philosophy also implies that the organization is regarded as a part of society with several interested parties (stakeholders), an idea which provides a starting point for considering the social implications of the organization's activities.

ETHICS AND FAILURE PREVENTION

In order to understand the relationship between ethics and failure prevention, it is important to understand the three key ethical management models that exist in the organizational world: moral, immoral, and amoral. Moral management conforms to the highest standards of ethical behavior and strives to operate within the confines of sound ethical standards predicated on such norms as fairness, justice, respect for rights, and due process. It seeks out only those economic opportunities that the organization can pursue within the confines of acceptable ethical behavior. Immoral management, on the other hand, is focused on exploiting opportunities for organizational or personal gain. It is devoid of ethical principles and implies a positive and active opposition to what is ethical.

In the human rush to classify things as good or bad, moral or immoral, the role that amoral management plays in organizations is often overlooked. Amoral management is not just a middle position between moral and immoral management. Although there is a tendency to position it as such, it is different in nature and kind from the other ethical models. Amoral managers believe that different rules apply in an organization than in other realms of life; therefore, they do not factor ethical considerations into their actions, decisions, and behaviors. They are "simply casual about, careless about, or inattentive to the fact that their decisions may have negative actions or deleterious effects on others".[184] Perhaps, besides the major ethics scandals seen in recent years, the more serious organizational issue today seems to be amoral management – subscribing to or living out the amoral ethic. While amoral managers seem to be good people, they essentially see the competitive world as ethically neutral. Thus, unless they move toward the moral management ethic, we will continue to see public criticisms hurled upon organizations.

Improving the organization's ethical climate is essential to avoiding failures in the organization and enhancing the quality of its operation. This may be accomplished through various means. Of utmost importance is the need for top management leadership. The behavior of managers has the most important influence on the ethical behavior of their subordinates. Ethics policies are only as valid as the commitment management gives to them. Through its capacity to set up a personal example and shape policy, top management is in the ideal position to provide a highly visible role model for others to follow. Confucius once said that if a prince wants to be called a prince, then he has to act like one.[185] Managers need to communicate, orally or in written form, the importance of ethics to the organization. They must also be forthright, sincere, and honest in their communication transactions. The communicator should be faithful to detail, should be accurate, and should avoid deception or exaggeration. The ethical manager should also be careful what information to disclose to others.

Managers at all levels should set realistic objectives or goals. Top management must take the lead in institutionalizing ethics into the organization. This is because managers and employees look to them for cues as to what is acceptable practice. Managers must avoid creating situations in which others may perceive a need or an incentive to cut corners or do the wrong thing. They must discipline violators of its accepted ethical norms if they are to bring about an ethical climate that everybody in the organization will believe in. Strong leadership from the board and the top administrator is still the most powerful force in improving the organization's ethical climate. One valuable lesson that can be learned from the mega scandals of the 21st century and the passage of the 2002 Sarbanes-Oxley Act is that the board must be involved in the oversight of an organization's ethics programs and initiatives.

Ethics programs are very important. These initiatives often involve developing and disseminating codes of conduct, training on standards of conduct, administering some type of hotline for employees, providing a means to report misconduct, and conducting ethics audits. Codes of conduct are standards of behavior that serve to raise the level of ethical behavior in the organization by clarifying what is meant by ethical conduct and encouraging moral behavior. When codes are implemented forcefully and embedded strongly in the culture, reports of unethical behavior tend to be lower. Ethics training includes the use of ethics codes as training devices, lectures, workshops, seminars, case studies, films, discussions, articles, speeches, and others. If techniques and strategies can be taught for handling a variety of business decisions, the same can be done for predictable ethical decisions or challenges. Whenever they observe a questionable practice, employees should have a way to blow the whistle or to report violators. They should have a way to know exactly what is expected of them and how to respond to ethical violations. Organizations can also employ toll-free numbers whereby employees may call in simply to inquire about ethics matters. The organization may review the success of its ethics initiatives by conducting an ethics audit.

The organization must also pay close attention to its ethical decision-making processes. Ethical decision making is a rather multifaceted process that is complicated by multiple alternatives, mixed outcomes, uncertain and extended consequences, and personal implications.[186] It usually involves a process of stating the problem, analyzing the problem, identifying the possible courses of action that might be taken, evaluating these courses of action, deciding the best alternative, and then implementing the chosen course of action. In this process, the individual is asked to identify the action, decision, or behavior that is being considered and then to articulate all dimensions of the proposed course of action. This course of action is then subjected to an ethics screen, which consists of select standards against which the proposed course of action is to be compared. These standards can be any or a combination of three different approaches: conventional approach, principles approach, and ethical tests approach. Firstly, in the conventional approach to ethics, a decision or practice is compared with the prevailing norms of acceptability. It is called conventional because it is believed that this is the way that a conventional or general society thinks. The major challenge to this approach is whose norms should be used and whose norms should prevail.[187]

Secondly, in the principles approach, managers factor into their proposed actions, decisions, behaviors, and practices a consideration of certain principles or concepts of ethics. An example of this approach is the principle of utilitarianism, developed by Jeremy Bentham[188] and John Stuart Mill,[189] that states that we should always act so as to produce the greatest ratio of good to evil for everyone. Another ethical principle is the golden rule, advocated by both Confucius and Jesus. Confucius admonished: "Do not impose on others what you do not wish for yourself".[190] Jesus' version, "Do unto others as you would have them do unto you," continues to be a basic and strong principle of ethical living and decision making today. Perhaps it was Peter Drucker who gave us the most concise ethical principle for which leadership is responsible: "primum non nocere" or "Above all, not knowingly to do harm".[191] This is the basic rule of professional ethics, the basic rule of an ethics of public responsibility. It is the job of managers to scrutinize their deeds, words, and behavior to make sure that they do not knowingly do harm.

Then lastly, the ethical tests approach is more practical in orientation and is useful in helping to clarify the appropriate course of action.[192] Take for example the test of one's best self where one asks "Is this action or decision I'm getting ready to take compatible with my concept of myself at my best?" This test addresses the notion of the esteem in which we hold ourselves and the kind of person we want to be known as. Of course, this test would not be of much value to those who do not regard themselves in high esteem. But to those who do, this could be a powerful test. Another test, which is considered to be one of the most powerful tests, is the test of making something public. This test addresses the issue of whether one's action or decision can withstand public disclosure and scrutiny. This test lends further strength to the transparency movement which is permeating business today.

It is important to remember that years of successful growth and performance of an organization, an agency, or an individual can be destroyed by one immoral or unethical act. An organization that is seen to behave badly would likely lose the esteem and respect of its customers and other stakeholders and so lose sales and profitability. Thus, it is logical to assume that organizational bad behavior can be bad for business.[193] However, the benefits of good behavior are not guaranteed. While there may be an association between ethical organizational practices and good financial returns, it is not clear whether it is the ethical practices that increase profits. Nevertheless, it does not mean that an organization should not strive to minimize the potential costs of being found to have acted improperly. It is safe to assume that good ethical practices contribute to higher profits for the organization in the long-term.

THE COST OF QUALITY

The conventional wisdom of the American world of work was that if you want to raise the quality of a product or service, you must spend more money on it. Dr. W. Edwards Deming, and Dr. Joseph Juran began to challenge that conventional wisdom in the 1950s.[194] Dr. Genichi Taguchi's subsequent research and writings in Japan on the cost of quality completely rendered obsolete the idea that the only way to improve a process was to throw more money on it. Taguchi defined the costs relating to quality as the losses incurred by individuals, organizations, or societies as a result of poor quality. These losses can be measured not only in terms of rejection, scrap, or rework but also in terms of pollution that is added to the environment, products that wear out too quickly, or other adverse effects that may occur.

Taguchi took the concept of what should be measured when determining quality to a new level. The cost of quality is determined by measuring results from existing poor or failed quality. For example, faulty product returns are measurable. Costs of inspection versus including quality into design can be measured. Organizational or user repair costs for labor and parts can be measured. Production line downtime can be measured. Customer losses due to poor service can be measured. Enrollment drops in a university can be measured. Investment in failure prevention can be costed. Results of Six Sigma programs can be compared with processes that have not adopted Six Sigma. Profits after ISO certification can be compared with those before certification. Costs of quality programs can be compared with revenues over time and with returns on investment prior to implementation of those quality programs. The costs of poor quality policymaking can be measured in terms of human suffering that it causes.

In his book "Out of the Crisis" Dr. Deming states that using Taguchi's model leads to lower and lower costs as quality improved.[195] The Juran Institute has done extensive research and documentation into Quality Costs. The controversy of the 1970s in the United States over whether "Quality Costs or Quality Pays" has been resolved: QUALITY PAYS. Quality pioneers, quality institutes, The American Society for Quality (ASQ), quality degree programs in colleges and universities, the spread of international quality standards, increasing profits of companies which have adopted quality programs, and the global adoption of the United States Government Malcolm Baldrige Quality Award Criteria and the successes of the European Quality Award and ISO 9000, among others, are all testimony to the overwhelming evidence that quality pays in the cost- benefit sense. Deming, Juran, Feigenbaum, and Crosby all taught that it would.[196] The Taguchi definition has given the world indisputable proof.

The costs of quality (COQ) can be broken down into four major components: prevention costs (PC), appraisal costs (AC), internal failure costs (IFC), and external failure costs (EFC). Prevention costs are those costs associated with preventing defects and imperfections from occurring. They are considered as investments made to keep appraisal and failure costs to a minimum, that is, to ultimately reduce the other two quality cost categories. Prevention costs are associated with such activities as quality training, quality planning, process engineering, supplier reviews, statistical process control, and corrective action. An example of prevention cost related to ethics is the cost of educating employees in the organization's ethical belief systems and boundary systems.[197] This cost covers materials and formats typically used by firms in their ethics training such as ethics codes (as a training device), lectures, workshops/seminars, case studies, films/discussions, and articles/speeches.[198]

Appraisal costs are those associated with measuring quality directly. They are associated with efforts to ensure conformance to requirements through measurement and analysis of data to detect non-conformances. They pertain to the costs of laboratory testing, inspection, equipment test and materials, losses resulting from destructive tests, and costs associated with assessments like the ISO 9000:2015 or other awards. The cost of an ethics audit is an example of an appraisal cost related to ethics. Ethics audits are conducted to carefully review such ethics initiatives as ethics programs, codes of conduct, hotlines, and ethics training programs. They may employ written instruments, committees, and employee interviews.

Internal failure costs are those incurred as a result of unsatisfactory quality found before the product or service is delivered to the customer. Some examples include scrap and rework costs, costs of corrective action, downgrading costs, and process failures. Reduced productivity due to low employee morale following ethical lapses would be an example of an internal failure cost related to ethics. Day-to-day ethical dilemmas in such areas as conflict of interest, sexual harassment, inappropriate gifts to organizational personnel, unauthorized payments, customer dealings, evaluation of personnel, and pressure to compromise personal standards all have a potentially adverse effect on employee morale and productivity.

External failure costs occur after poor-quality products or services reach the customer or stakeholder. Some examples include costs due to customer complaints and returns, product recall costs and warranty claims, product liability costs, lost customer goodwill, and lost sales. In service organizations, these costs can take the form of interrupted service, delays in waiting to obtain service, excessive time in performing the service, errors made in billing, delivery or installation, or unnecessary service. Lawsuits brought about by the government or private individuals are examples external failure costs that can result from unethical behavior. The cost required to comply with the provisions of the Sarbanes-Oxley Act of 2002 is also an example of an external failure cost.[199] The law requires public companies to provide better protection for their investors by improving their financial reporting. The penalties for non-compliance are severe. A chief executive officer or a chief financial officer who misrepresents his company finances may be fined up to $1 million and imprisoned for up to 10 years. If the violation is willful, the fine may go up to $5 million with up to 20 years imprisonment.

Each cost component can be compared by calculating the ratio of each with respect to the total quality cost:

PC/COQ AC/COQ IFC/COQ EFC/COQ

The ratio of each with respect to total sales can also be calculated (TS):

PC/TS AC/TS IFC/TS EFC/TS

Lastly, we can calculate the ratio of the total quality cost with respect to total sales: COQ/TS

These ratios reveal how much opportunity exists for quality improvement. They help steer ongoing quality improvement efforts toward the greatest possible economic payoff. It is typical to see external and internal failure cost ratios very high. Experts have estimated that about 60 to 90 percent of total quality costs come from internal and external failures.[200] Traditionally, managers have responded to high failure costs by increasing inspection. However, such actions only increase appraisal costs with little impact to overall quality or productivity. Actually, an increase in prevention usually results in larger savings in all other cost categories. For example, the cost of replacing a failed component in the field might be $1,000 but the cost of replacing it after assembly might only be $100. Still the cost of testing and replacing it during assembly might only be $10. And further still, the cost of changing the design to avoid the problem in the first place might only be $1. Clearly, it is evident that better prevention of quality reduces failure costs as fewer defective items are made and hopefully none of these falls into the hands of the customers. And since products are made correctly the first time, fewer appraisals may eventually be required. Unfortunately, many managers fail to understand and implement these ideas.

The cost of quality concept can be very meaningful to an organization because of the idea that failure costs can be reduced through marginal, discretionary investments in prevention and even appraisal activities.[201] The ratios between the four cost components, total quality cost, and total sales show how much opportunity exists for quality improvement. As stated earlier, better prevention of poor quality clearly reduces internal failure costs and external failure costs as well. Moreover, less appraisal is eventually required because products are made correctly the first time. The relationships among the four cost components pinpoint areas of high quality cost and turn attention toward the greatest improvement efforts. For most organizations, management typically finds that the highest costs occur in the external failure category, followed by internal failure, appraisal, and prevention, in that order. Actually, the order should be reversed. The bulk of quality costs should be found in prevention, some in appraisal, perhaps a few in internal failure, and virtually none in external failure. Thus, an organization embarking on a quality cost program should first try to reduce external failure costs to zero by investing in appraisal activities to identify the sources of failure and take corrective action. As the organization improves its processes, both internal and external failure costs should decrease, and the amount of appraisal can then be reduced with the emphasis gradually shifting to prevention activities.

ETHICS AND QUALITY

According to Bottorff, ethics failures may be classified as either moral or economic.[202] Moral failures may or may not entail a monetary cost. Nevertheless, even on moral grounds alone, strong ethics standards are vital to the promotion of a healthy society. Economic failures, on the other hand, entail some monetary cost which affects the organization's profitability. Economic ethics failures are classified as either external or internal, as part of the overall cost of quality concept and its components. In the past, organizations have addressed the failure costs associated with blatant ethical violations such as large legal judgments, prison terms, anti-trust litigation, fines, lost sales, lost goodwill or any negative responses from external stakeholders. Customers expect reliable products and minimal defect rates from good and service providers. Thus, it is unethical to deliver defective products knowingly to them. Socially responsible organizations also work hard to protect the environment which is increasingly seen as a significant ethical concern. Consequently, more of them implement recycling programs and improve their environmental practices. The costs of external ethics failures can be very staggering and can amount to billions of dollars every year. These costs typically account for a substantial portion of the total external failure cost of quality. Preventing these costs will yield great economic benefits for the organization.

Internal ethics failure costs are reflected in the barely noticed behavior patterns in the organizational social system or operating culture which inhibit operating performance. Employees encounter ethical dilemmas in their work every day. Such dilemmas range from conflicts of interest to sexual harassment, inappropriate gifts to organizational personnel, unauthorized payments, shady customer dealings, biased evaluation of personnel, and pressure to compromise personal standards. These internal ethics failures are rarely visible on the ethics policy radar screen because in many instances employees choose not to disclose their wrongdoings or those of their colleagues and therefore those incidents are not typically reflected in external failure costs. They go largely unnoticed and unmanaged. Besides the external cost of poor ethics, the internal cost can be one of the largest quality cost components in many organizations. Hence, prevention of this cost can result in substantial cost savings for these organizations. Overall, both external and internal ethics failures cost organizations much more than they realize and certainly more than they can afford. Over half of all documented quality costs could be attributed to the cost of ethics failures.[203] If the cost of quality for world class organizations is running between 10 and 15% of total sales, then the associated ethics component is costing companies billions of dollars annually. If the cost of quality of an average organization is running at around 20–25%, then the ethics component is so huge that it provides a tremendous opportunity for improvement in the company.

Ethics programs and audits are directed towards preventing and detecting ethics failures. Ethics programs are organizational units responsible for developing ethics initiatives in the organization which include developing and disseminating codes of conduct, training on standards of conduct, administering some type of hotline or advice line for employees, and providing a means to report misconduct. The presence of ethics programs serves as a deterrent against potential employee misconduct. Also, employees generally perceive that those who violate their organization's code of conduct will be held accountable so that they are less likely to compromise organizational standards. The cost of developing ethics programs represents part of the prevention component of the cost of quality. A good ethics policy incorporates early warnings and checks and balances, not just to catch and punish wrongdoers but also to pinpoint emerging risks and prevent ethics failures. Ethics audits, on the other hand, are employed to assess an organization's ethical climate or programs. They may also be conducted to examine such management attitude and activities as management's sincerity, communication efforts, incentive and reward systems, and others. Costs related to ethics audits are considered part of the appraisal component of the cost of quality.

The cost of quality concept is very helpful in illustrating how ethics impacts quality. By developing a wide range of ethics programs and by conducting comprehensive ethics audits, good ethics helps to reduce both external and internal ethics failures which in turn help to reduce the external and internal failure costs of quality. Good ethics helps to improve communication and group dynamics by promoting transparency throughout the organization, by facilitating logical reasoning and dialogue among workers, and by increasing the flow of information within the organization. It provides an additional set of eyes and antennae to the organization to inform it of how well it is doing. Improvement in communication and group dynamics generates a positive effect on organizational activities and results and enhances work productivity and quality. Good ethics does not only prevent unhealthy behavior but also inspire superior moral reasoning and performance that result in sustainable competitive advantages for the organization in the long run. In order for quality initiatives to work, the organization must combine process improvement with ethical and cultural changes in the organization. The success of every quality program, regardless of the name (Lean Techniques, ISO 9000, Total Quality Management, Malcolm Baldrige Award, Six Sigma, Balanced Scorecard, Lean Six Sigma) depends on the collective efforts of everybody in the organization. The effectiveness of these efforts hinges on the organization's operating ethics and culture. Focusing on technical improvements alone, without taking into consideration the ethical and cultural factors, will derail the collective process that is essential to sustain the quality journey. Ethics failures, if left unchecked, can often hold back process improvements. Thus, it is extremely important that ethics is incorporated by design into the continuous improvement process in order to sustain the quality journey over the long haul.

The cost of quality concept also helps to demonstrate that high quality cannot be achieved or sustained in an immoral, corrupt, or dishonest system. The success of any quality program depends on the effectiveness of many collective efforts. This collective effectiveness cannot be accomplished by administrative action alone. It needs an environment where good ethics is practiced with administration as its champion. In a genuine quality improvement program, there is no room for selfishness, moral exclusion, abusive management styles or policies, or ethical compromises. Such things will derail collective efforts and teamwork which is a vital component of quality management. Without a deep commitment from top administrators to develop a healthy culture based on fairness, open communication, shared information, and teamwork, which are critical ingredients of quality management, the risk of failure for quality programs can be very high.

If the question "Can quality be achieved or sustained in an immoral, corrupt or dishonest system?" were submitted to any population or group of quality professionals, the authors are convinced that the response would be a resounding "NO". Moral advocates through the ages have confirmed the need for honesty, integrity, ethics, fairness, dependability, transparency, trustfulness and character in leadership. Quality programs, like total quality management, declined in popularity towards the end of the 20th century because executives, corporate boards, and in some cases even employees and their unions forced philosophical, ethical, and cultural compromises on their companies.[204] Huge costs and damage to people continue to occur because leadership too frequently uses its power to exercise greed and dishonesty for self-serving purposes that disregard the harm created for others. The need for moral leadership continues to increase with the ever increasing human and material costs of its failure. It's a United States and global necessity. The tremendous costs to society resulting from massive organizational ethical failures in the 21st century underscore the importance of moral leadership as a key ingredient for long-term organizational success.

PART III: DESIGN AND IMPLEMENTATION

Part III explores how the systems approach to quality can be applied within the context of higher education. The approach is founded on the premise that customer satisfaction can only be achieved if institutional participants work together well individually and collectively. This requires a careful and skillful implementation of the philosophies, tools and techniques of total quality. Chapter 7 provides how the quality deployment model and the action plan can be applied to higher education. Chapter 8 explores how lean techniques can be used to reduce waste and improve quality in colleges and universities. Chapter 9 introduces Ideas Unlimited, one of the top group survey research tools in existence. The use of the tool is founded on the premise that those who do the work possess the know-how and the ideas to improve it. In this respect, it is a valuable tool that one can use to manage for quality and performance excellence in colleges and universities.

7 QUALIY SYSTEM DESIGN AND IMPLEMENTATION

The systems approach to educational quality is based on the premise that customer satisfaction can only be achieved if individual areas of the institution work well individually and collectively. To improve its quality management system, institutions of higher education must skillfully implement the philosophies, tools and techniques of total quality. The quality journey is a process of continual growth and improvement. Achieving total quality, however, will not occur overnight. Mistakes are bound to happen along the way. Organizations which understand their customers, products, employees, markets and processes will have a better chance at achieving their goals as they journey towards quality maturity.

ON EDUCATIONAL LEADERSHIP

It is standard assumption in the quality management literature that leadership is the overriding principle of quality improvement. Without leadership, total implementation of quality at the college or university will not succeed. While quality improvement is everybody's job, it is primarily the top administration's responsibility to keep the process going as they "have the requisite authority, vision, and constancy of purpose to direct the whole organization at the strategic level".[205] According to Deming, managers control 85% of the systems while workers control only 15%.[206] Hence, the responsibility for improvement at the college or university rests heavily on the hands of its managers – top administrators, associates in administration, and division and department heads. Quality improvement, however, will not be achieved without the help of all school personnel.

Quality management requires positive change. Leadership is the catalyst to effect and manage such change. The role of leaders at the college or university should then be "one of enabling everyone in the organization to focus on pleasing the customer".[207] They develop work processes, measurements, and goals for the whole institution and inspire everyone to seek quality in all aspects of their work in order to accomplish these goals. It is imperative that administrators show an understanding of the mission, vision, and values of the institution and ensure that others buy into the same mission and vision.

It is important for administrators to understand that management differs from leadership in a number of ways. While the manager is preoccupied with "doing things right," the leader, on the other hand, is involved in "doing the right thing".[208] *Right* is defined as those aspects of performance that are essential for competitive success or for accomplishing the organization's mission.[209] "Management is efficiency in climbing the ladder of success; leadership determines whether the ladder is leaning against the right wall".[210] Whereas management is associated with setting things in their proper places, leadership, on the other hand, is associated with a motivation force pushing or pulling a group or organization toward its goals. Both management and leadership are needed to effectively and efficiently run an educational institution. Leadership is needed to introduce the principles of total quality and sustain its practice at the institution because it is leadership that provides people with a picture of what needs to be done to achieve common objectives, and instills the desire to achieve them chiefly by actions rather than by rhetoric. Leadership states what is expected of the college or university, envisions what it will try to do and not do, works to provide the means or resources for the institution, and understands that the knowledge required to operate ideally does not exist because of variations within the system.

To foster trust in the institution, its leaders must model behaviors they want everyone to exhibit. They must strive to create an atmosphere in which excellence will thrive and which stresses not only competencies and skills but also patience, kindness, and mutual respect. A true quality leader would exhibit knowledge, personality, and persuasive power.[211] He or she also possesses deep integrity and a noble character which fosters trust.[212] Trust in turn leads to collaboration rather than competition. Trust fosters a learning environment where mistakes are tolerated and used as lessons for improvement rather than employed as grounds for immediate expulsion from a group or institution. The key to developing a trusting environment is the leader's unshakeable "fairness" in dealing with issues that are discussed both in public and in private. "Managing resistance with intellectual strength, honesty, and integrity is one of the most essential functions of leadership in a time of upheaval".[213]

A true quality leader would communicate openly and frequently with those with whom he interacts. His communication would be constructive, truthful, thoughtful, and careful and performed with the highest possible integrity. He would seek to understand the effects of his actions on the rest of the institution. He ensures that he and his team support the best results for the whole institution sometimes even at the expense of his own personal ideals or those of his team. Leadership is not displayed solely by the top leader. It also comes from other members of his team as well as from the rest of the higher educational system thereby developing a division of labor and instilling a sense of ownership. Lewis appropriately sums this up as follows:

> *Higher education cannot afford to rest its future in the hands and the heads of only a few good people. Creating a culture of leadership is a way of sharing both the responsibilities and the opportunities of future challenges and will go far in ensuring that higher education will have the human resources needed for shaping its own destiny amid inevitable demands for change.*[214]

Turning a trouble-ridden institution around and capitalizing on its strengths require a change in attitudes and behaviors of institutional participants. During such times, leadership of one or a few individuals is not enough. A culture of leadership is needed.[215] A quality leader would be personally involved in the training and education of himself as well as others in the institution. This would enable him to truly understand the needs of the college/ university and get directly involved in carrying out its goals. He would ensure that he does not become a barrier to continuous improvement but rather becomes the first person to remove such barriers so that the institution can best achieve its vision.

The role of the Board of Trustees in the quality process is also very important. The Board must demonstrate total commitment and support for the institutional quality improvement program. By establishing quality policies, the Board can help to set the stage for new administrative policies and procedures that would enhance the college or university quality process. Through solid education and training, Board members can become champions for quality both in the college or university and in their respective institutions.

In the final analysis, the institution will be ready to begin its quality transformation when administration is willing to give up the old paradigms of management control; replace competition with cooperation; admit that the institution can be built on the empowerment of people and not simply on the basis of rewards and punishments; and encourage creativity, innovation, pride in work, and risk taking, even though along the way failures will sometimes occur.

ON STRATEGIC PLANNING

After the mission of the college or university has been clearly defined and an information system is built around it based on customer needs and expectations, the next step is to translate this preparation into practical reality by defining the institution's short-term and long-term goals and by tying everyone's daily work to these goals. Strategic quality planning begins with a firm commitment and affirmation from the college or university administrators that it will no longer be "business as usual" in the institution. The planning process also requires participation from everyone. Certainly, all will be eager to participate if they understand the gains that will be derived from the total quality approach and the changes that will be required of them. Participation will also be further facilitated if everyone is educated on the principles, methods, and tools of total quality. One who goes through the education process will normally experience growth in knowledge and commitment. It is absolutely essential that everyone is engaged in the quality activities of the institution. Total participation is possible if discussions concerning the strategic quality plan take place within the context of a trusting and open environment where all can express their views without fear of retribution or reprisal especially from those in authority.

Strategic planning establishes goals which must be directly related to the mission statement of the institution. A specific time frame is given for achieving such goal. When strategic plans (what to improve) are done well and linked firmly with the operating or process capabilities (how to improve) of the institution, the results can be astounding. Short-term (1–2 years) and long-term (3 or more years) plans should be clearly connected. The strategic plan must be communicated and deployed with great care. Administrators and board directors should not treat the strategic plan lightly because how they communicate it tells a lot about the depth of their commitment.

Plans must be reviewed on a regular basis to keep up with rapidly changing customer requirements and market conditions. The planning process itself must be periodically reviewed with an eye toward continuous improvement. The strategic quality plan should:

- establish Board and administrative commitment to total quality education and communicate that commitment to the college or university community;
- provide everyone the opportunity to participate voluntarily and understand the need for total quality education;
- create the infrastructure needed to implement quality improvement at all levels of the institution; and
- put in place tools and processes that would enable everyone to participate in and contribute to quality improvement and establish systems for recognizing outstanding quality performance by teams and individuals and to provide a continuous cycle of training to assure institutional commitment to quality education.

ON CUSTOMER FOCUS AND SATISFACTION

Obstacles towards building good relationships with institutional stakeholders must be removed. "Satisfied customers would tell three other people; dissatisfied customers would tell seven other people".[216] Knowledge of customer requirements and of key quality factors is vital in order for the college or university to remain competitive in the marketplace. Customer satisfaction is the real measure of whether or not the goals of the college or university are being met. It is the culmination of the institution's quality improvement efforts. It is the single best means to communicate quality. Customer focus and satisfaction hinges on complete understanding of the needs of the institution's customers and on the methods used for data collection. The most vital step on the road to customer satisfaction is identifying customer requirements. The institution should not rely merely on hunches or hearsay as evidence of satisfaction. Nor should it be tempted into using gossip as basis for data. Instead, it should design an instrument that measures specific criteria and use such instrument to collect data from its customers. Data should not be used for the purpose of blaming or casting blame on anyone. Unless data is used responsibly to resolve problems there is no valid reason for collecting it. In a quality-based institution, complaints are eagerly sought after as golden opportunities to learn and to improve the system. The more high-quality data the institution uses, the clearer its customer portrait will be, the faster it will be able to adapt to changes in the marketplace, and the better it will be in anticipating the needs of its customers. "You can never go too far or say too much in the name of customer satisfaction".[217]

MEASUREMENT, ANALYSIS, AND KNOWLEDGE MANAGEMENT

Adequate and accurate data and information are necessary to drive quality excellence and improve competitive performance. They are needed to improve the institution's customer focus, services, and internal operations. Collection of adequate and accurate data is necessary to keep the institution moving and improving. The main reason for collecting them is to improve administrative and academic processes and systems. Data are essential for effecting total quality improvement because the latter can never be achieved without the former. Systems and systems management is based on fact rather than intuition.

Every piece of data collected from various institutional stakeholders ought to be carefully analyzed and utilized because no one would provide information if it will just be ignored or overlooked. Data have to be analyzed and presented in a way that is readily understood by all. All relevant information should be shared with members of the institution so that they too can become winners and partners in change. Information sharing should become an indispensable part of the plan-do-check-act (PDCA) cycle which is crucial to total quality implementation.

When data, statistics, and information are used systematically, they will give the college or university a focus for change. They will allow the institution to plan effectively and make the necessary process changes. The data collection and information analysis then become part of the recurring Plan-Do-Check-Act cycles for the educational institution. The process continues in a never-ending cycle of improvement.

ON MANAGEMENT AND DEVELOPMENT OF HUMAN RESOURCES

The total quality concept stresses the importance of quality in every aspect of an organization. According to Imai, a business or an organization consists of three building blocks: hardware, software, and "humanware."[218] Total quality begins with the "quality of people." Only after the humanware is squarely in place should the hardware and software aspects of the business be considered. The humanware must be managed in a way that optimizes the whole organizational system. This poses a great challenge especially at the college or university because while skills can be learned, attitudes are harder to change.

An effective human resource recruitment and utilization for the college or university will need to address the following areas: (a) recruitment of dedicated and qualified personnel; (b) total involvement in quality improvement efforts; (c) employee education and training; (d) recognition and measurement of exceptional performance; and (e) morale and well-being of employees. These areas are inter-connected. Recognition, for instance, boosts participation and morale while training facilitates participation.

To encourage campus-wide participation and involvement, the college or university can take the following steps to engage all its workers in a number of ways. First, institute a vigorous program of education and self-improvement. Education in the principles of quality management is critical to producing quality work. Second, remove barriers that rob people of their right to pride in workmanship. Recognize that everyone wants to do quality work. Provide challenges that would require them to stretch their limits. "When people feel no one cares about their work, pride in workmanship disappears and work becomes drudgery. No one is happy. No one seems to really care, and nothing of quality happens".[219] Third, institute a vigorous program of self-improvement. Leaders especially the top administration should become role models for continuous self-improvement both in their personal and professional lives. Each individual should develop a personal development plan which includes, for example, conference or seminar attendance, subscription to professional magazines, journals, and newspapers, and keeping up with the latest trend in one's subject matter. Fourth, improve constantly using the principles, methods, and tools of quality until all have achieved a degree of success and are doing quality work.

One very important aspect of human resource utilization is team-building. Team building is a concept that is almost as important as process improvement. A team is a group of people who are goal centered, interdependent, honest, open, supportive, and empowered.[220] The synergy developed within effective teams in terms of relationship, trust, and support can exceed the original expectations of the team. Certain conditions would be needed in order to maximize team involvement and effectiveness. The college or university must create an ideal environment which fosters cohesive teams. People must feel comfortable, confident, and motivated. The institution must provide a supportive environment built on trust and understanding. The college or university must recognize that there will be differences of opinion. It should encourage risk taking and innovation. Above all, it should establish an effective communication system for the whole institution. Before tackling their respective tasks, self-managed teams should go for intensive training in team building, mission setting, vision setting, and other skills required to enhance the work of the teams.

ON MANAGEMENT OF PROCESS QUALITY

The purpose of process management is to ensure that all important processes of the college or university work together to maximize its effectiveness. Process management "is mostly about the prevention of errors".[221] By process is meant "a method of doing something with all the steps involved".[222] Managing processes is important because the institution cannot have products or services without them. Without products or services, the institution will not be able to fulfill its mission or achieve its vision. It is process management, championed by the total quality philosophy, which provides the missing link to quality assurance in higher education. The common approaches to assure quality in higher education are accreditation and outcomes assessment. Accreditation primarily focuses on inputs such as faculty qualifications, finances, and facilities without having any significant understanding of the need and expectations of the institution's customers or stakeholders. Outcomes assessment, on the other hand, focuses on educational outputs or products without providing an adequate basis for identifying problems incurred during the process of providing the product. Quality management, with its emphasis on process management, provides the link between the accreditation approach and the outcome-assessment approach by providing the basis for obtaining the knowledge and understanding of the relationship between causes and effects.

Effective process management requires institutional personnel who know how to monitor, control, and constantly improve processes by using methods that focus on quality instead of numerical goals and outcomes. The process manager uses scientific methods and quality tools to minimize waste and to solve problems for continuous improvement. Waste is the cost of non-conformance or "all the expenses involved in doing things wrong".[223] It is thus extremely important for everyone in the institution to be involved in efforts to do things right because if anything goes wrong in one area, say a department, the adverse effects will be felt by others throughout the whole institution. Doing things right the first time will also keep costs down and increase customer satisfaction.

Lasting and significant change will not occur without direct and active involvement by those in the "front-line" of activity. True reform in the college or university will not happen unless responsibility for learning rests with those most involved – teachers and students. Nothing significant will be produced without the full support of the institutional faculty and staff. The teachers, because of their "front-line" relationships with both students and the community, have very significant roles to play in the quality improvement process. They are the ultimate innovators on campus. In a quality environment, teachers are actively engaged in the decision-making process and are accorded a higher status in the institution. They are provided substantial opportunities for renewal, innovation, and growth. In quality-based institutions of higher learning, educators recognize that those directly involved in the activity are the ones most qualified to suggest ways to improve the system.

ON QUALITY AND OPERATIONAL RESULTS

Quality and operational results are the bottom line. They help the college or university to assess the quality of its academic and administrative systems. If particular systems produce good results, chances are they are good systems. Results also demonstrate that the institution is measuring and tracking its systems. They verify progress toward customer satisfaction. Since the goal of quality management is continuous improvement, the only true way to measure that improvement is by the use of data collected from the institution's internal and external customers before and after changes is made to processes and systems. Data collection will give a more accurate picture of what is working and which systems and processes require improvement. The institution should never lose sight of the importance of feedback from its customers or stakeholders. Feedback based on fact is vital if the institution is to truly embark on a continuous improvement journey. It is only through systematic and factual collection of data that the college or university can truly know whether or not the job is being done right.

DESIGN CONSIDERATIONS FOR IMPLEMENTATION

Lewis and Greene identified three common reasons for failure of policy and program innovations.[224] They are: programmatic over-expectation, conceptual failure, and implementation failure. Programmatic over-expectation refers to unrealistic expectations about success. This type of failures may be prevented by warning customers to be careful (*caveat emptor* – let the customer beware) or by warning advocates not to promise what they can't deliver. Conceptual failures refer to inaccurate or incomplete understanding of causes and effects and the relationships underlying policies or programs. Such failures may be avoided by a thorough study of the policy or program being undertaken. Implementation failures refer to failure to carry out the policy or program as designed. Such failures may be avoided or minimized by careful understanding of the issues and actions related to actual implementation. According to Tom Peters, quality programs often fail because implementing organizations either have a "system without passion, or passion without a system."[225]

Implementing a quality improvement program in an educational setting is likely going to be complicated. Although barriers are part of any change, some are intensified in colleges and universities because of the culture, nature, and purpose of higher education. Before undertaking such enormous task, therefore, one is advised to take note of the following admonition from Machiavelli's *The Prince*.

> *There is nothing more difficult to carry out, nor more doubtful of success, nor more dangerous to handle, than to initiate a new order of things. For the reformer has enemies in all those who profit from the old order, and lukewarm defenders in all those who would profit by the new order.*[226]

The college or university needs to understand the unique combination of history, personalities, culture, and systems which exist within it and subsequently adapt the total quality philosophy to its own unique situation. There is no standard "cookbook recipe" for total quality implementation which can be grafted from one organization to another. The total quality literature is full of techniques, prescriptions, procedures, and models which sometimes contradict each other. The suggested approach in this book is an eclectic one – taking the best out of the different models that exist in the literature and configuring it into a framework that is most applicable to the college or university environment taking into account the different views of the institution's stakeholders. In this book, the authors propose an eclectic model for designing and implementing a total quality program at a college or university. The following model is a systematic approach to quality planning and implementation based on functional areas of the Malcolm Baldrige National Quality Award. The general deployment model which provides a framework and guidelines for starting, operating, and sustaining a quality program at the college or university is provided in Table 7.1. It is adapted from Lewis and Smith's total quality deployment model for higher education.[227]

	QUALITY PROGRAM STAGES		
	STARTING	**OPERATING**	**SUSTAINING**
Educational Leadership	• Secure commitment from the college/ university top administrators • Learn quality values and their applications to the college/ university • Establish links with other quality-based institutions	• Model quality behavior to faculty and staff • Create quality values and set expectations for the entire institution • Apply quality principles in day-to-day management • Communicate quality values to faculty and staff • Communicate quality values to the community	• Integrate quality in all major decisions • Evaluate and improve effectiveness of personal leadership and involvement • Integrate public responsibilities into quality policies and practices
Strategic Planning	• Develop plans focusing on operational improvement • Set short-term and long-term goals relating to quality improvement • Secure commitment for long-range budget to support quality initiatives	• Determine and consider key quality factors in planning • Link all quality improvements together • Secure long-term funding for employee learning needs	• Implement short-term and long-term plans with solid staff commitment • Improve the planning process itself through greater use of input from different stakeholders • Anticipate public concerns and assess the impact of products and services

	QUALITY PROGRAM STAGES		
	STARTING	**OPERATING**	**SUSTAINING**
Customer Focus	• Establish a system to collect information on customer requirements and expectation • Establish an organized system of maintaining public relations • Secure commitment to address principal concerns of customers	• Be responsive in solving problems • Communicate with customers clearly and simply • Track levels of customer satisfaction and dissatisfaction	• Establish an on-going process to anticipate future needs • Provide customer-contact employees with training in areas like listening and problem solving • Delight the customer/ stakeholders constantly

	QUALITY PROGRAM STAGES		
	STARTING	OPERATING	SUSTAINING
Workforce Focus	• Set up goals and identify key indicators for improvement • Orient all employees to quality values through introductory programs. • Evaluate the need for training based on shortterm and long-term strategic goals	• Set up mechanisms to promote employee contributions to quality and operational performance • Implement faculty and staff development programs • Develop performance, recognition, promotion, compensation, reward, and feedback approaches that support quality goals and plans	• Establish systems to evaluate the quality of training and relate it to on-the-job performance • Encourage employee participation in quality teams and other qualitysupporting activities • Track employee satisfaction and well-being in a systematic way
Operations Focus	• Take into account customer requirements in the design of products and services • Understand concepts of process variation and process management	• Design quality into curriculum development process • Build in mechanism of continuous improvement (PDCA, quality tools) • Measure and track quality throughout the production and delivery process	• Improve the design process continuously • Establish a system to assess the quality of processes and products • Translate assessment findings into actions to improve the quality of products/ services, processes, and systems
Results	• Determine whether key factors that predict customer satisfaction and quality in customer use are improving	• Compare quality levels with competitors, industry averages, industry leaders, and other benchmarks • Calculate the cost of quality	• Show consistent trends in data collection • Improve measures of productivity and effectiveness

Table 7.1 Total Quality Deployment Model for Higher Education

A descriptive summary of an action plan for implementing total quality at the college or university is presented in Table 7.2 at the end of the chapter. It is adapted and condensed from Lewis and Smith's action plan for total quality transformation process.[228] It provides a framework upon which a specific plan applicable to the college or university can be designed and developed. The action plan provides extensive guidelines for *what* should be done, *who* should be doing it, *why* this particular action is necessary, *how* the action should be carried out, *when* it should be done, and *what* indicators are required to ensure that it has been implemented. As such, it furnishes a comprehensive guide for initiating a thorough and, hopefully, more effective and productive total quality transformation plan for any institution of higher education. The action plan, however, is not intended to be a rigid short-term scheme but rather as a guideline for implementation which can still be refined to fit the specific needs and circumstances of the institution. Since the quest for quality is never-ending, the institution must eventually develop its own systematic approach to problem solving using the action plan as a core guide in order to perpetually improve its administrative and academic processes. The following sections describe how the deployment model in Table 7.1 and the action plan in Table 7.2 may be applied within the context of higher education.

Educational Leadership

Leadership is probably the most important ingredient in establishing quality at institutions of higher education. To do so would first require total commitment from their administrations and their Boards of Directors. But commitment to the tenets of the total quality philosophy does not come easily. It comes from an understanding that leaders will have to assume different roles in the twenty-first century. To understand this new role, board members and administrators will have to be educated in the principles of quality management. With proper education and training, they will have been armed with the requisite knowledge and skills to model quality behavior to the faculty, staff, and students. This is important because the college or university faculty and staff have often asked that administrators always set an example and model those behaviors they want everybody else in the institution to exhibit. Establishing quality on campus requires that all administrators practice what they preach by applying quality principles in their day-to-day activities and by communicating quality values to the faculty and staff, students, and to the community. For institutions of higher education, leaders are expected to be models in all aspects of institutional life: spiritual, mental and physical. Administrators are expected to be servant-leaders – always willing to serve and minister to the needs of others but at the same time willing to create quality values and expectations for others in the institution.

It is a good idea to hold a special retreat for Board members to learn how to function in the Board, to understand the organizational structure and to find out how the institution can operate more effectively. This dialogue can help strengthen the Board by clarifying its function, role and supervision of the college or university. Such retreat may also include administrators who can serve as valuable resource persons for the Board members. Regular meetings or get-togethers can help to bridge and strengthen communication among the Board members and administrators. One difficulty in accomplishing this would be that many Board members are key people in their respective institutions and may not have much time to spare for special education and training in quality concepts.

The key person responsible for providing quality leadership in the long-term is the college or university president. He is ultimately responsible for setting the vision and for accomplishing the mission of the institution. Due to the high level of authority and responsibility usually associated with his office, the president is expected to possess strong leadership skills. The president as well as other administrators is expected to possess the following leadership traits: to be visionary, long-term focused, open-minded, fair, attentive, assertive, supportive, customer-oriented and action-oriented. Having the ability to understand the market and anticipate market trends, to motivate subordinates and to delegate tasks is also a very strong point.

To sustain the quality improvement process, quality needs to be integrated in all major decisions and activities of the college or university. It will require a change in policies, practices, procedures, and values. It will require a change in personal leadership style and involvement. The management of such changes is the direct responsibility of the President and the Administrative Council, and ultimately the college or university Board. The faculty and staff, the students, and other stakeholders should have input in those changes before they are formally approved by the Board. If the administration is bent on pushing the total quality initiative it might be wise to establish a Quality Council to provide on-going leadership in establishing and maintaining the quality effort. The Council membership may include representatives from various administrative and academic groups of the institution including faculty, staff, students, alumni, and other stakeholder groups. While a separate Council is advisable at the initial stage of the quality improvement process, its functions can eventually be assumed by the Executive Council once the program is up and running and quality becomes an integral part of the institution's educational process. A Design and Development Team may also be formed to develop and monitor the total quality plan and to encourage everyone to join and to contribute to the quality improvement effort. Members of this team are appointed by the Quality Council from critical divisions and departments of the college or university. All council and team members are to undergo training to increase their understanding of quality improvement principles and process improvement. At any rate, the top administration should take the lead in encouraging everybody to contribute to the total quality program. It is responsible to communicate progress to its internal and external stakeholders. It is responsible in establishing an educational climate conducive to institutional success which encourages everybody to stretch their spiritual, mental and physical limits to achieve superior performance and problem-solving capabilities.

Strategic Planning

Strategic quality planning begins with a firm commitment from the President, assisted by his fellow administrators, that he or she will no longer do "business as usual" in the institution. This comes from the realization that the environment within which institutions of higher education operate is no longer the same as before. The market has changed and the rules of the game have also changed.

The mission and goals of the institution should be regularly reviewed. Long-range planning should be done at the top level of management and it should be comprehensive. By comprehensive is meant involving everybody in the formulation and implementation of the strategy and ensuring that everybody understands what is expected of them to carry out the plan successfully. It is important that the administration truly understands the mission of the institution and the evolving nature of its business in the face of a very volatile market environment. It should also recognize the need to include everyone in the transformation. Such involvement must be encouraged within the context of a trusting, open environment where participants feel safe in expressing their views (both positive and negative) without fear of reprisals from either the administrators or from colleagues. Many at the college or university will probably be skeptical about the new plan. After all the very concept of an administrator saying that he or she will institute a new way of operating the institution and that every member would be asked and encouraged to provide input for improving the college or university is not a common phenomenon.

Since the total quality model is dramatically different from the Tayloristic model, it will take some time to properly educate all the institutional participants. Part of the action plan suggested in this chapter includes: (a) a communications plan to ensure systematic and consistent communication about the quality effort; (b) a training plan to increase understanding of quality improvement principles and process improvement; (c) an education plan to initiate the transformation process with all members of the institution; (d) an assessment plan to obtain data to assess the current state of "quality" in the institution; and (e) a personal self-improvement plan to develop the institution's most important resource – its people. Once the commitment to total quality is made and the institution has found a way to include everyone in the transformation, the next step will be to establish quality goals which are directly related to the mission of the institution. Each division, department, or person can be encouraged to set stretch goals that will be somewhat difficult to achieve yet will allow each one to be individually challenged while recognizing individual differences. Those who learn to set stretch goals will ultimately be comfortable with the necessary changes that are thrust upon them daily.

Customer Focus and Satisfaction

If the college or university is to focus on the needs of its customers, it must first identify who these customers are. Basically, the institution has two sets of customers: external and internal. A few of its many external customers are the service industries, manufacturing industries, and government agencies that employ former students, the colleges and universities that build on what former students have learned, and the local community. Of these external customers, the general community is the final and by far the largest. The institution's internal customers include students, teachers, administrators, and governing bodies. Of these internal customers, the student is usually considered the most important. Customer satisfaction is the real measure whether or not goals are met. It is only through a systematic and factual collection of data from customers that one can really know whether or not the job is being done right.

The institution's customer focus may be improved by listening to its customer needs, approaching them in a special way, making them feel special, making inquiries on their progress, and acting promptly and carefully on their requests. It is important that the administrators consult with those (e.g. students, faculty, staff, fellow administrators) who will be adversely affected by their decisions to prevent feelings of alienation, isolation, and anger. It is also important that they focus on building trust by allowing free exchange of ideas and frank and open discussions of the problems at hand. Listening without intimidating, manipulating or becoming defensive is the key. When students, teachers, administrators, parents, community leaders and other stakeholders can listen non-judgmentally to each other, everyone can become partners in the continuous improvement process.

Measurement, Analysis, and Knowledge Management

Total quality improvement at the college or university can never be achieved without collecting data. The idea of collecting factual data should not be frightening but should help everybody in uncovering clues as to how the institution is performing. Some people (faculty, staff and students) at the institution are frightened by data collection where their responses can be identified. They are also wary of the use of statistical methods because of the belief that the data will be used against them. If students and employees feel threatened or feel that there may be reprisals from the administration or others they will be less likely to be honest and will not provide the institution with the required information. Although it is difficult to guarantee that this will not happen, all the institutional participants are encouraged to recognize these fears and move forward in spite of them. Factual data are necessary for effecting quality improvement at the institution. They need to be integrated into the planning and decision-making process of the institution. While seeking help, ideas, or suggestions is important, using these ideas to actually improve institutional services is equally as important.

A critical step to data collection will be an analysis of the various customer groups in the college or university. By customer is meant "who gets your work" as Deming defines it. Many processes and systems exist at the educational institution. There are administrative processes, academic processes and auxiliary service processes. Owners of these processes or those directly involved in the situation under study will need to identify their customers and suppliers. For instance, the cafeteria customers may include students, faculty, staff, administrators and others who buy food from the cafeteria. Customers of Plant Services will include those who receive services from the college or university maintenance personnel. The customers of the School of Business would include faculty in the School, the Academic Dean and other administrators, the students, and others who have interest in programs offered by the School. Another critical step is to collect information for benchmarks and comparisons. This may be accomplished by establishing links with selected quality-based organizations (both educational and non-educational), consulting firms and professional bodies in the United States and abroad.

Before collecting any data, the institution will have to decide which problem(s) needs to be addressed and to state this problem clearly and succinctly. Then it needs to establish small groups of individuals who are directly involved in the situation to determine the root causes of the problem and to establish an action plan. The members of each team need to agree on the causes of the problem and may utilize one or more tools of quality to arrive at a consensus. An action plan is then developed and implemented to resolve the problem. Results are monitored to determine whether the recommended solutions should be standardized or whether other alternatives should be explored. If data collection and usage are handled properly and professionally, information becomes a friend which can give the entire institution a focus for change. Information gathering becomes a part of the plan-do-check-act cycle which is crucial to total quality implementation.

Workforce Focus

What is particularly needed in colleges and universities today are teachers who can help students do a better job. These are teachers who have the ability to empower students to bring about change in the traditional classroom and encourage them to constantly search for ways to improve their world, their beliefs, and their society. The kind of students produced will have the necessary skills to survive and thrive in the complex, ever-changing world of the twenty-first century. They will not be afraid to face change because they will have been taught to accept it as a way of life. The institution will need to exert effort to develop and utilize the full potential of all its members. A major thrust will be for each one to have a personal professional development plan which includes training in the principles of total quality. The action plan found in Table 7.2 does include an education plan and a personal self-improvement plan to develop the institution's most important resource which is its people. Such efforts need to be modeled for walking the talk is vital to success. Institutional workers cannot be expected to be enthusiastic learners without comparable enthusiasm from institutional administrators. The object here is life-long learning not only in their personal lives but in their professional lives as well. A well-thought out personal development plan might include conference attendance, library readings, subscription to a variety of professional magazines, newspapers, and journals, as well as knowledge of the latest trend in one's subject matter.

To encourage its personnel to accept total quality as a new way of doing things, the college or university can develop several recognition activities to help acknowledge the contributions of its faculty, staff and students. Awards may be given that recognize performances which exceed customer expectations, effective use of time and effort, exemplary and skill contributions to the institution and the community, and significant and measurable impact on the institution through effective teamwork and problem solving.

Operations Focus

There is a need to develop a cooperative atmosphere where administration, faculty and staff can work together in unity. The institution must foster a culture of trust in word and deed and an environment where everyone can trust in their ability to do a "quality" job, in others' abilities to do the same in their respective areas and in the institution as a whole. There needs to be a concerted effort from every worker and administrator towards progress of any kind which means that everyone should be involved in studying problems, in providing solutions and in decision making. Barriers and problems can be surmounted by positive and active teamwork.

The institution must pay attention to the quality of inputs (students, faculty, staff) the process and the output. Emphasis needs to be given to the quality of teachers and staff. If possible, their performance needs to be reviewed regularly and results fed back to them for self-improvement. There is a need to implement an evaluation system which measures performance of each individual in the college or university including the administration. No one should be exempted from this quality improvement exercise. There is also a need to conduct a careful study of student and other stakeholder needs to determine whether the college or university and subsidiary groups (divisions, departments, offices) are providing quality service to students and to each other. Stakeholder input would be valuable for developing new programs, products, and services for the institution and for assessing whether existing ones are meeting their short-term and long-term needs.

Quality Results

Quality management is based on the use of properly analyzed statistical data to show the achievement level of an institution or an individual. Data determines how one can work towards continuous improvement. The college or university measures that improvement by collecting data from its internal and external customers before and after changes are made to its processes and systems. It is extremely important to know what customers think about the services that the institution provides. This feedback based on fact is vital for the institution to truly embark on a continuous improvement journey. Feedback based on hearsay, hunch, intuition, or sporadic observation is neither sufficient nor adequate for determining processes requiring continuous improvement. Benchmarking institutional services with those of world-class educational institutions will provide a very good indicator of any progress. It is possible to take the best of several institutions and capitalize on the strengths of each to make massive improvements in the institution. Case studies documenting the activities of model schools which have already embraced the total quality philosophy are increasingly becoming available in the literature. A list of schools which have already adopted the principles of quality management is available in an annual special issue of Quality Progress, a publication of the American Society for Quality.

If not handled properly, performance reviews will probably do more to make the faculty and staff more antagonistic to the institution than any other single item. For instance, one of the problems associated with traditional teacher evaluation is that most are based on administrative classroom observation rather than on data. While such observation can provide some classroom insights, it can never replace an efficient, effective on-going data collection process. It may do well for college or university administrators to avoid the common fallacy which supposes that it is possible to rate people and rank their performance next year based on their performance last year. The performance of anybody can be the result of a combination of many forces – the person himself, the people that he works with, the job, the materials that he works on, his equipment, his customer, his management, his supervision and environmental conditions (noise, confusion, poor food in the college/university cafeteria). These forces account for incredibly large differences in performance between people. To rate an individual's performance without taking into account the aforementioned factors is courting the antagonism of the person being evaluated.

NO.	ACTION	WHAT	WHO	WHY	HOW	WHEN	INDICATORS
1	Adopt program	Explore quality issues and adopt total quality program	President, and Executive Council	To ensure top level commitment to the effort	Appoint Quality Council	Month 1	Executive Council minutes
2	Form Quality Council	Appoint Quality Council from key positions in the organization (administrative and academic groups, faculty, staff, and other employee groups	President, and Executive Council	To provide on-going leadership in establishing and maintaining quality effort	Identify quality council mission, vision, guiding principles, goals	Month 1	Executive Council minutes; Quality Council minutes
3	Form the Design and Development Team	Create the Design and Development Team	Quality Council	To have the college/university team responsible for developing and monitoring the TQ plan; to encourage everyone to contribute to the quality improvement effort	Select people from critical divisions and departments; identify the mission, vision, and guiding principles for the team	Month 2	Quality Council minutes; Design and Development Team minutes
4	Communications plan	Plan to communicate the program and process	President and Quality Council, Design and Development Team	To ensure systematic and consistent communication about the quality effort	Quality Council meeting, Design and Development Team meeting	Month 2 and continuously throughout the program	Written materials, Quality Council minutes, Design and Development Team minutes
5	Training	Train the Quality Council and Design and Development Team	Qualified individuals, which may include outside consultants initially	To increase the understanding of quality improvement principles and process improvement	Intensive workshops (a location away from work is preferred)	Month 2 with follow-through session continuous during the project	Training designed and delivered; written initial mission, vision, guiding principles and goals

NO.	ACTION	WHAT	WHO	WHY	HOW	WHEN	INDICATORS
6	Clarify mission, vision, guiding principles, and goals	Conduct meetings (workshops) focused on the college/university vision, mission, guiding principles, and overarching goals	Quality Council, Design and Development Team	To ensure a collective commitment to the mission, vision, guiding principles, and overarching goals	Discussion of assessment report and sessions focused on the review and development of material related to the mission, vision, principles, and goals	Month 2 with follow-through session continuous during the project	Training designed and delivered; written initial mission, vision, guiding principles, and goals
7	Education plan	Develop plan to introduce the quality program and quality principles	President and Quality Council, Design and Development Team	To initiate the transformation process with all members of the institution	Publication of the plan, newsletters, meetings, seminars, workshops	Month 3	Quality Council minutes, Design and Development Team minutes, written documents
8	Introduce quality improvement	Introduce all members to quality improvement principles and techniques	President and Quality Council, Design and Development Team	To initiate the transformation with all members of the institution	Official documents, newsletters, meetings, seminars, workshops	Month 3	Quality Council and Design and Development Team minutes
9	Develop assessment plan	Develop a plan to assess the college/university and its leadership in terms of quality improvement principles and issues	President and Quality Council, Design and Development Team	To obtain data to assess the current state of "quality" in the institution	Review existing literature for assessment, gather benchmarking and internal data, seek consultants	Month 4	Assessment instrument
10	Conduct assessment	Conduct assessment with customers and suppliers; analyze the results	Design and Development Team	To collect data on quality in the institution	Surveys, preview of documents, existing databases	Month 4	Completed data files
11	Prepare and circulate report	Prepare assessment report; circulate to the President, Quality Council, and key individuals	Design and Development Team	To share data, obtain feedback, and involve members	Formal meetings, written reports, newsletters	Month 5	Assessment report, other related documents, record of the meetings
12	Identify opportunities	Identify opportunities for quality improvement	President and Quality Council, Design and Development Team	To select target areas for quality improvement efforts	Analysis of report(s), discussions with key members	Month 5	List of target opportunities

NO.	ACTION	WHAT	WHO	WHY	HOW	WHEN	INDICATORS
13	Select and train teams	Select and train teams from major functional areas and other areas of the college/university	Co-ordinated by Design and Development Team in consultation with the Quality Council; training done by appropriate persons (may be outside consultants)	To increase understanding and commitment to quality improvement efforts among key persons in major areas of the institution	Select and appoint functional management and local teams	Month 6	Design and Development Team minutes; training designed and delivered to functional management and other teams
14	Personal self-improvement	Provide education and development for self-improvement of everyone	Each person in the college/university on a voluntary basis and preferably in teams to facilitate co-development	To develop the institution's most important resource, its people, for the benefit of the people and the institution	Provide courses and seminars in developing personal vision, mission, and objectives plans	Month 6	Positive evaluation of the courses/seminars, measurable impact on team effectiveness
15	Personal self-control	Provide education in developing personal vision, mission, and objectives plans	Each person in the college/university on a voluntary basis and preferably in teams to facilitate co-development	To demonstrate the college/university commitment to personal growth and control; to enforce team development with personal development	Provide courses and seminars in developing personal vision, mission, and objectives plans	Month 6	Positive evaluation of the courses/seminars, measurable impact on team effectiveness
16	Identify opportunity areas	Identify opportunities for quality improvement efforts based on process and problem analysis	Functional management teams, Design and Development Team	To assist the Quality Council in identifying opportunities for quality improvement efforts	Analysis of all materials produced by the assessment and process management activities	Month 7	Reports to functional management teams and to the Design and Development Team and Quality Council
17	Initial process improvement projects	Identification of the core processes	Quality Council and Design and Development Team	To assure that all key processes are working in harmony to maximize organizational effectiveness	Systematic effort by the Quality Council and Design and Development Team to identify core processes of the college/university	Month 7	List of core processes of the institution

NO.	ACTION	WHAT	WHO	WHY	HOW	WHEN	INDICATORS
18	Work on improving process	Functional management teams focus on internal process improvement efforts	Functional management teams, Design and Development Team	To provide team members with the opportunity to analyze and improve internal processes	Process and problem analysis	Month 7	Design and Development Team minutes' functional management team minutes
19	Benchmark best practices	Identification of best practices and performances on target processes and projects	Functional management teams responsible for improvement effort, with reports reviewed by the Design and Development Team and Quality Council	To maintain continuous improvement orientation; to obtain data on best practices	Review of data concerning the performance of outside quality leaders in each process area (field, related fields, similar functions)	Month 8 and continue throughout the project	Benchmarking data, internal reviews comparing process/project performance with outside quality leaders
20	Training, remediation, and enhancement	Develop and deliver additional training for persons identified in steps 13-15 or on topics identified through the benchmarking process	Design and Development Team in cooperation with the functional management and local teams	To maintain the relevance of the established education and training program; to enhance the knowledge, skills, and attitudes of everyone	Formal training programs, newsletters with an educational focus, written materials (job aides, manuals, performance guidelines)	Month 8 and continue throughout the project	Additional training completed and evaluated; written materials published
21	Customer-supplier orientation	Sensitivity to meeting, even anticipating needs of customers/constituents; establish long-term relations with suppliers	Each person in the college/university within the framework of the teams, and in co-operation with the Design and Development Team and Quality Council	Implement the basic mission of the college/university and totally serve the customers/constituents	Provide courses and seminars on customer service; team-based projects addressing customer service process	Month 8 and continue throughout the project	Successful completion of and measurable impacts on customer service and supplier orientation projects

NO.	ACTION	WHAT	WHO	WHY	HOW	WHEN	INDICATORS
22	Charter improvement efforts	Process management improvement efforts recommended and approved	Local teams, Design and Development Team, Quality Council	To ensure selection of appropriate processes, authorization, commitment, and support	Local teams recommend priorities and target processes; they are reviewed and approved by Design and Development Team and Quality Council	Month 8	Approved reports on process improvement priorities and target processes
23	College/university issues and priorities	Identify issues and priorities of the college/university	Local teams	To have an accepted set of issues that need to be addressed by the college/university	Cross-functional teams, following a systematic process	Month 9	Reports on activities and results of cross-functional teams
24	Integrate quality into planning	Integrate quality improvement principles and techniques into college/university planning	Led by the Quality Council, in cooperation with the other teams that have been formed	To institutionalize quality improvement principles and techniques into on-going planning activities of the college/university	Train all team members in quality improvement principles and techniques, development of policies and procedures	Month 9 and continuously throughout the program	Training designed and delivered to all team members; written policies and procedures
25	Initial projects	Identify the initial projects based on the list of core processes of the college/university	Functional management and local teams in cooperation with the Design and Development Team and Quality Council	To ensure that projects are based on the core college/university processes and to select problems with a high chance of success as the initial projects	Each functional management and local team identifies the problem processes they would like to initially address	Month 10	Approved list of initial projects
26	Plan activities	Initiate the overall plan for each of the selected projects	Functional management and local teams	To identify the necessary steps, required resources, and areas of collaboration with other teams for each project	Each functional management and local team develops the overall plan and strategy for the selected projects	Month 10	Fully developed plan for each selected project
27	Organize activities	Coordinate the organizational framework of each project; conduct training on shared responsibilities (cross-training)	Functional management and local teams	To organize all the necessary steps, required resources, and areas of shared responsibilities for each project	Each team collaboratively organizes its project with the help of a lead person as the facilitator; conduct workshops on cross-training	Month 10	Fully developed and understood organizational framework for each project

NO.	ACTION	WHAT	WHO	WHY	HOW	WHEN	INDICATORS
28	Implement activities	Begin each project based on the developed plan and organizational framework	Functional management and local teams	To initiate the selected team-centered quality improvement projects	"Just do it;" get started with the projects applying PDCA, action research, and appropriate quality tools and techniques	Month 11	Visible indication of projects beginning, initial progress reports
29	Control activities	Utilize the control strategies developed in the overall plan of the project	Functional management and local teams	To assure the progress of each project, based on planned control systems	Utilize the appropriate quality evaluation and feedback tools and techniques	Month 11	Scheduled progress reports
30	Complete the projects	Complete each project within the designated objective, specified time, and budget	Functional management and local teams	To demonstrate the success of team-centered project management		Month 11	Scheduled progress and end-of-project reports
31	Process and project evaluation	Evaluation criteria and procedures built into all quality improvement efforts; quality improvement efforts reviewed and evaluated	Functional management and local teams responsible for improvement effort, with reports reviewed by the Design and Development Team and Quality Council	To learn whether the improvements occurred in terms of effectiveness, efficiency, and meeting the needs of customers; to maintain orientation to continuous improvement	Application of total quality tools such as control charts and other more formal evaluation techniques	Month 12	Evaluation criteria and procedures identified for each project; periodic project reports
32	Measure overall programs	Develop and conduct efforts to monitor and evaluate the overall impact of the quality improvement efforts	Quality Council and Design and Development team, in cooperation with the functional management and local teams	To obtain data on the impact of quality improvement efforts; to ensure a fact-driven organizational environment	Development of overall development design that builds on and synthesize the team project reports	Month 12	Team projects evaluation reports, synthesized evaluation reports

Table 7.2 Action Plan for Total Quality Implementation

8 LEAN TOOLS FOR HIGHER EDUCATION

Most educators view teaching and learning as the most critical activities in colleges or universities. However, these activities are largely driven by financial realities and budgetary considerations. Educational programs cost money. Therefore, sound funding and competent budgeting are necessary to operate a school. "Without good budgets, there are no schools". Because sources of funds are finite while educational needs are infinite, prioritization of programs often becomes necessary.

It is a basic process in educational institutions to align anticipated revenue sources with planned expenditures. If revenues are inadequate, programs may need to be scaled back. Thus, static or declining revenues are a dreaded event in these institutions. Poor economies, enrollment losses, and a host of other reasons can impact institutional revenue. Thus, there is an urgent need to devise methods to balance the budget. Either additional sources of revenue must be found or planned expenditures reduced. Unfortunately, the most common response to budgetary shortfalls is reduction in personnel because they comprise a sizable chunk of the institutional budget. While in some cases there may be a basis (e.g., redundant personnel) for such an action, there are areas that can be explored to achieve real savings. A major way to cut costs would be to improve the efficiency of colleges or universities by addressing the issue of waste.

WASTE IN EDUCATIONAL INSTITUTIONS

Waste is "anything in the process that does not add value for the customer". Because educational work is a process, waste can come from many areas within this process. Educational institutions, therefore, should focus on the continual reduction of waste. Some things to consider when looking for waste are:

Inventory

Unnecessary build-up of inventory like office and food supplies costs money in terms of storage and carrying of overstocked, obsolete, or incorrect items. Excess funds tied up in inventory are funds that cannot be put into productive use somewhere else in the system.

Defects

Defects in schools can take the form of corrections, adjustments, or inaccurate or incomplete information, which can lead to scrap or rework. They lead to lost revenue, reduced process cycle time, and overproduction of the product or service. They waste labor and generate more paperwork to document the errors and actions done to correct them. Examples are missing or incomplete information on student application forms, registration forms, petition forms, financial forms, and other forms used by administrators, faculty, and staff.

Overproduction

The waste of overproduction is probably the most serious and one that costs the organization the most in terms of time and dollars. This occurs when schools, divisions, departments, or units make "more of something earlier or faster than the next process needs it". One place where this waste can occur is the college cafeteria when they prepare more food than can be consumed during a given day. Administrative and academic offices also overproduce when they request more supplies than are actually needed for day-to-day usage. Overproduction often leads to waste of building to inventory.

Motion

The waste of motion occurs when non-value-added unproductive steps exist in a process. It generally adds labor costs to the provision of services in schools. An example of motion waste would be unnecessary walking from one point of the campus to another point due to poor design and layout of the buildings and the campus as a whole.

Waiting

Waiting to a certain extent can be considered a type of waste. It includes waiting for a decision on an enrollment application, waiting to see a financial or academic advisor, waiting for approval of a petition, waiting on a checkout line in the cafeteria or in the bookstore, and many other examples.

Transportation

In education, waste can show up when moving people, equipment, materials, and information around the campus.

Processing

Processing waste is caused by either the excess of or lack of people, materials, equipment, and other resources needed to facilitate teaching and learning in the campus. Doing more than is required from the point of view of the customer is wasteful. An example of over processing is requiring multiple signatures on a work order, on a hire order, or on an academic petition form. Underutilizing employees by failing to tap into their education, knowledge, and expertise also poses a serious waste for the institution.

Many of the process activities within any educational institution can be evaluated for waste affecting time, costs, and materials. Waste, in its various forms, can be identified, minimized or eliminated altogether by using lean techniques originally employed in manufacturing but can be applied to services like higher education.

THE PHILOSOPHY OF LEAN

Lean is based on the philosophical view of waste reduction. This view states that anything in the process that does not add value to the customer should be removed. Thus, the basic meaning of lean is the absence of waste. Its ultimate goal is to achieve the highest quality at the lowest cost. As waste increases cost without adding value, it should be the key target for elimination. Educational work, however, is mainly knowledge work because a significant component of the workforce is primarily engaged in the task of managing information. Consequently, waste is much harder to see. Waste can be dealt with indirectly by increasing value added work in schools and by reducing incidental or non-value-added work.

> *Adding value is the fundamental belief that individuals and organizations exist to create value for society through their interaction with suppliers, customers, employees, stockholders and communities. It is also the ongoing effort to fully align purpose, strategy and people around the transforming nature of serving others.*[233]

Lean also focuses on creating flow by identifying the most effective and efficient way of moving tangibles (products and services) as well as intangibles (information and knowledge). Employees must work together to identify and meet their customers' needs. For this to happen, leaders must be able to match the expertise of their workers to the tasks at hand, to build and nurture shared values among them, and to help them grow and develop. Lean allows each person in the organization to reach his or her full potential by striving for the best possible personal performance and by engaging in the process of continuous learning.

The philosophy of lean is founded on a number of principles. The first principle is that it is the customer who determines what is of value to him or her. Then those activities that do not add value to the process of satisfying the customer are removed or reduced. These have the effect of improving the speed of the process. As the process gets more streamlined, it naturally results in "less waste, less cost, less work in process (WIP), less complexity, higher quality and happier customers". The lean philosophy asserts that the people closest to the work are the ones who know it best and are therefore best qualified to improve it. However, they first need training in the techniques of problem solving and lean. Empowering workers to engage in lean helps to develop internal knowledge and skill base needed to sustain waste reduction efforts in the institution.

LEAN TOOLS

The lean institution needs to evaluate the different areas of waste described above and reduce or eliminate them to become more efficient in its provision of educational services. The approach to take is to eliminate the waste through good housekeeping and then to standardize the process steps. Some of the strategies that an institution can use to operate more efficiently and cost-effectively are described below:

5S. The five S's are derived from the following Japanese words: *seiri* – organize and get rid of unnecessary files, forms, tools, or other materials; *seiton* – straighten offices and work areas; *seiso* – clean work areas and equipment to eliminate dirt that can obscure problems; *seiketsu* – standardize locations of tools, files, equipment, and other materials using color coding or labels; *shetsuke* – maintain discipline in the first four S's. The five S's are sometimes referred to as the five steps of house cleaning. Places in the college or university that can greatly benefit from 5S are storage rooms or supply rooms found in almost all buildings on campus.

Mistake-Proofing

Mistake-proofing an institution's service process requires determining when and where errors generally occur and identifying their root causes. The final step is devising ways to prevent these errors from occurring. Mistake-proofing must account for the activities of the service provider as well as those of the service recipients. Mistake proofing can be used to prevent errors that arise in the performance of a task. For example, during student registration, a computer prompt prevents a student to go further in the process unless he or she completes certain required steps. A computer prompt will also prevent a student from registering for a course that he or she is not qualified to take. Mistake-proofing can also be used in preventing errors that arise in the contact between the server and the customer. For example, a method that has been used by banks and which can be used by schools is encouraging service providers to maintain eye contact with customers by requiring them to record the customer's eye color on a checklist during the course of the transaction. Another example is giving servers cues on when to smile during a transaction and to observe whether the customer smiled back. Another way to prevent errors would be to focus on the physical elements of the service. An example of this would be to color code or properly label (e.g. using a bar code) student application packets to indicate clearly where they are in the process and whether additional information is needed from the student.

Mistake-proofing can be employed to prevent customer errors in preparation, during an encounter, and during the problem resolution stage. For example, it helps to provide students a list of items (e.g. update personal information; getting holds lifted) that they need to complete first before they approach their advisors for class registration. This reduces the amount of time that is needed at the advisor's office to complete the online registration process. Automatic flushing devices in restrooms help keep the urinals or the toilets bowls washed after every use. A device used to shut off office or classroom lights after a designated number of minutes helps to conserve power after occupants leave their offices or when the last student leaves the classroom. Error prevention can also take the form of survey cards or follow-up calls on customers especially in major service centers (e.g., admissions office, records office, student finance office, personnel office, cafeteria, dean's office, book store, dormitories, etc.) of the institution to obtain information that will inform service providers of possible service inadequacies so that these can be addressed quickly and appropriately.

Value Stream Mapping

A value stream map is created to document the flow of resources from the supplier to the institution and ultimately to the final service recipients. The goal is to demonstrate how activities, materials, and information are interconnected. Value stream mapping requires flowcharting processes to determine where customer value is created and to identify non-value-added process steps, which contribute to waste.

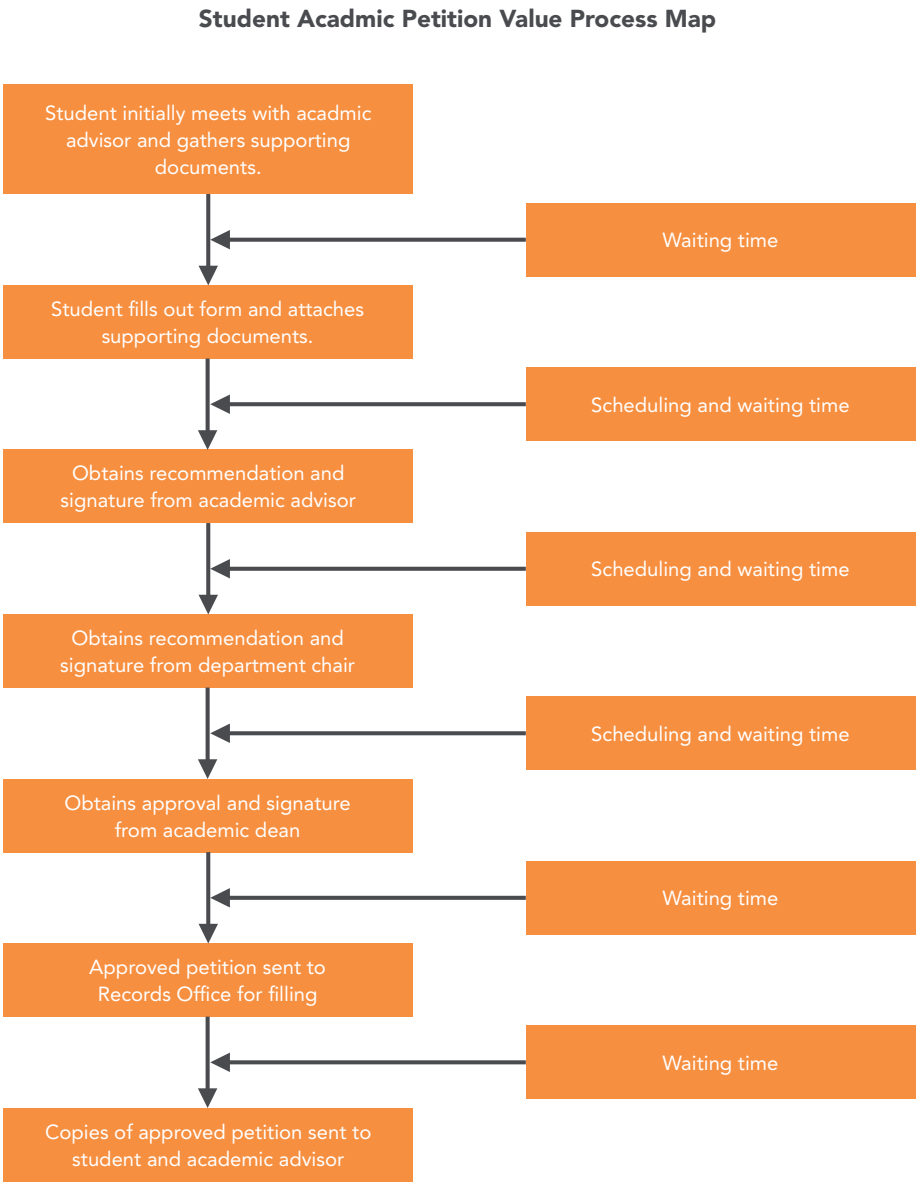

Figure 8.1 Student Academic Petition Value Process Map

Figure 8.1 depicts some of the steps a student must go through to have his academic petition (e.g., transfer of credit from another school, permission to take a course, petition to attend another school, etc.) approved and recorded. Scheduling and waiting time do not add value to the process and should be reduced to a minimum as much possible. They make the process very lengthy which contribute to increased dissatisfaction on the part of the student. The process can be streamlined by eliminating unnecessary steps (e.g., too many signatures required) like obtaining one approval signature instead of three.

Quick Changeover

This is the ability to convert something very rapidly. This tool can be used in areas such as classrooms. Typically, schools allocate about ten to fifteen minutes between the time a class ends and another begins. It usually takes time for a teacher to pack up his or her belongings and teaching equipment (e.g. personal computer) after class and for another teacher to set up his or her equipment to prepare for the next class. Being able to prepare a classroom from one class to another in a short time allows teachers to devote more time towards actual teaching of their classes. This may require installation of ready-to-use computers and accessories in every classroom so teachers do not need to take their own computers, cables, and remotes whenever they go to their respective classes.

Self-Inspection

All workers are responsible for their own work and perform needed inspections at each stage of the process making sure that no errors are passed along to the next stage. Identifying and correcting errors early in the process costs much less than when they are discovered and corrected at later stages. Of course, this is possible only when administration trusts and trains its workers properly.

Total Productive Maintenance

Also known as preventive maintenance, total productive maintenance is designed to make sure that equipment and machines are operational and available when needed. The philosophy behind preventive maintenance is that "the worst condition a machine should ever be in is on the day you purchase the machine". If equipment is maintained very well, it can actually improve with age. While major maintenance and unscheduled repairs are still done by trained technicians, people who operate the machinery are the ones who perform regular cleaning, lubrication, and light maintenance.

Kaizen

Kaizen is the Japanese word for continuous improvement. Kaizen improvements can be categorized as either innovations or incremental improvements. Innovations are new ways of doing things using new approaches or new machinery. Incremental improvements are small positive changes made to the existing condition and implemented by the school over a long period of time. Kaizen uses Shewhart's plan-do-check-act (PDCA) approach to problem solving. The PDCA approach is used to identify areas of improvement in the process and then to develop and implement action plans to improve them. The results are then verified to determine whether or not these improvements should become a permanent part of the process. After the cycle is completed, it begins again. To make lean work, different sub-components of the school must get to the root causes of the problems and permanently remove them. The kaizen journey never ends because institutional and market conditions continuously change.

Teamwork Environment

A team consists of two or more people working together in a common purpose. Well-led teams often lead to improved employee morale. Teamwork is an essential component of continuous improvement in lean environments. Using quality improvement teams, workers identify sources of waste or non-value-added activities using quality tools and find ways to eliminate them. This human side of lean is critical because educational institutions in most cases deal with the hearts and minds of students who must be transformed not only into knowledgeable workers but also into responsible citizens of society.

MAKING LEAN WORK IN HIGHER EDUCATION

Budgetary issues will probably dominate any decision process in schools in the foreseeable future. Finding sources of additional revenue will continue to be a challenge, therefore educational institutions will be compelled to do more with less. Under the best conditions, the preferred way to cut costs would be to improve the efficiency of their operation. This is where lean ideas become valuable. The application of lean techniques will be a start in improving the effectiveness of institutions in achieving their mission. 5S is probably one of the first tools that all institutions can use to organize their storage or supply rooms, followed by value stream mapping to streamline their processes to eliminate non-value-added activities. Other lean tools described above can also be employed. Administrators and supervisors must ensure that everyone involved in a work area is informed about upcoming lean projects and that some if not all of them are invited as members of the team. School leaders must never underestimate the value of communication as they manage change in the organization. They must help their workers understand why change is needed and how it is going to affect them. If the leadership allows workers who are closest to the work to be involved in the change process, the final output will be better.

By focusing on value (waste reduction) and people, lean will help workers to understand their central role in the organization's success making it easier for them to support the overall goals of the institution. A problem-solving mindset pervades the whole organization as processes are improved and aligned with the overall mission of the institution. The key is to sustain the change process and use lean techniques so that waste elimination and quality improvement become the normal way of doing business. This integral step requires the involvement of all workers in the school. This also compels top administration to participate regularly and visibly in the implementation process and to provide guidance.

Quality improvement occurs as a job is repeated for it is true that "the more you do something, the better you become at doing it"[237]. It is learning that allows lean activities to produce extraordinary results in organizations. Educational institutions and people in them must learn how to learn before undertaking improvement activities in their campuses. In the long run, superior performance depends on superior learning.[238] Profound organizational learning takes place as the entire workforce discovers the causes of wastes (errors, defects, and other non-value-added activities) in schools. Once the causes of wastes are discovered, systems are then put in place to reduce them or to eliminate them altogether. The changes made are documented and communicated to the rest of the organization so that individual and organizational learning occurs. It is important for institutional administrators to actively share best practices and knowledge about improvements with other parts of the institution. If knowledge is not widely shared, it can easily be lost. This is perhaps one of the major reasons many college-based improvement initiatives fail.

9 CAPTURING GLOBAL BRAINPOWER

Idea generation is universal throughout the evolution of methods and tools for quality improvement. The idea generator with the longest time of validation across societies, cultures, schools and organization is *Ideas Unlimited*. It is a natural partner to Quality Control, Quality Management and the Quality Sciences. This chapter will introduce one of the top group survey research tools in existence today.[239]

The validation of Ideas Unlimited theory and practice has occurred globally and cross-culturally since 1925. Its relevance for problem identification and solutions will continue to increase through the 21st century. The escalating capabilities of electronic communications will continue to facilitate the penetration of the method to places on the globe where there have not been applications to date, but where it is needed. Ideas Unlimited is being propelled by the revolutionary results of global electronic networking. In 2017 that networking facilitated *Real-Time Ideas Unlimited Data Capture*. Dr. Krone has continued to be the leading Ideas Unlimited scholar, teacher and researcher to the date of this book's publication, 2017.

The fundamental purpose of the Ideas Unlimited method is to creatively and rapidly improve organizational performance and productivity. Ideas Unlimited solves the historical enigma of organizational creativity being both needed and suppressed. It does that anonymously capturing creativity and know-how from people to achieve policy, strategic, and process organizational innovation. It enables top executives to efficiently achieve innovation through the simple process of cultivating creative people.

Workers know a lot and we need to capture their knowledge.

– Dr. W. Edwards Deming seminar
Costa Mesa, California, August 2, 1989

The basic principle of Ideas Unlimited is that those who do the work possess the know-how and the ideas to improve it. They are the leadership's best innovation resource. But they need a method, motivation and facilitation to allow the capture of their ideas in a non-threatening environment.

Human progress accelerated when ideas could be recorded. Ideas are the tangible output of the mental images the human brain and mind conceive. Applied brainpower has been the engine for change through the ages. Brainpower created the great philosophies, literature, art, music, military strategies, scientific discoveries, constructions, creations and inventions of the world. Ideas have consistently changed the world for better or worse. Change will accelerate in the future due to the real-time capability to share ideas as computers communicate universally around the globe and into space.

These are the four major sources of ideas:

1. Libraries, the traditional source of ideas previously documented.
2. Learning from observation.
3. Capturing unrecorded ideas people have in their minds.
4. The Internet, the world's new gold mine for documented ideas.

Ideas Unlimited focuses on Source #3. The information revolution has accelerated both the need for effective gathering, documenting and organizing of ideas and the problems of doing so. Change is experiencing exponential growth. Increased job turnover rates reduce the know-how level in business, government, schools, hospitals, military services and not-for-profit entities. Formal education teaches fundamentals that are not easy to apply for specific tasks.

Each company, agency, or organization has its unique equipment, facilities, interrelationships and procedures. Group instruction gets marginal grades as it is often given at the wrong time and given by the wrong instructors about things that are irrelevant to the learner. On-the-job training (OJT) is needed but hard to get, hard to give, and often of poor quality. What is needed is a know-how aggregating and disseminating system which can rapidly and effectively capture ideas in the individual brains of the organization or entity.

Identifying problems and searching for their solutions are the fundamental challenges in government, in business, in education, and in life. Few trends in management have been as consistent as the increasing awareness of leadership to the importance of capitalizing on the ideas of those who actually do the work throughout the structure and functions of the organization. Ideas Unlimited's relevance to society has continually increased as public and private system leadership, over the nine decades since the origin of the method, grew to realize that the skills, know-how, problems, and solutions of people are the best resource for continual improvements. It is not an experimental tool. It has been increasingly validated across systems, cultures and countries. It will not be a passing fad. Its scope reaches from personal productivity to international and beyond earth problem-solving. It has a huge history of past applications and an unlimited future.

Plato (427–347 B.C.) is credited with the first Doctrine of Ideas and Will Durant concluded: "Therefore the essence of higher education is the search for ideas."[240] Thinking seriously about ideas has been going on for at least 2,400 years. And we can assume that the thinking of humans on earth for many years was a major factor in survival of the species.

In 1925, Dr. C.C. Crawford, a young United States university professor, became frustrated with writing on legal paper voluminous notes and references for his first textbook and then wondered what to do with all those notes. He invented a method to write ideas separately on small slips of paper which could then be classified into the subjects which would become chapters, sections, paragraphs and sentences of the book. Later he titled that method *The Crawford Slip Method*. As Professor of Education at the University of Southern California during his tenure there (1926 to 1956), he taught his research method to graduate students which became the basis for his extensive consulting. His personal library contained books, papers and hundreds of reports written for clients or colleagues.

In 1981, as Systems Management professor at the University of Southern California, Dr. Bob Krone encouraged Dr. Crawford, then 83 years old, to return to USC from his retirement to head a small interdisciplinary teaching, consulting and research unit called *The USC Productivity Network*. It was based exclusively on his Crawford Slip Method.

During the following eleven years until Dr. Crawford's death in 1992, Dr. Krone managed a group of academicians and business professionals working with Crawford to help him revive his method and to publish research results in journal articles and books while also integrating the method into university courses.

In 1985, the USC administration approved Dr. Krone's six-month sabbatical research to investigate automation of the method. That led to the computerization and online use of the method and to the streamlining of the method under the name *Ideas Unlimited*. Krone Associates was awarded United States Trademark Registration Number 2,347.492 in the year 1998.

During the years since Dr. Crawford's death in 1992, Krone Associates have expanded the teaching, consulting, and publishing of Ideas Unlimited to Asia, Latin America and Europe as well as throughout the United States. Dr. Krone's Masteral and Doctoral level candidates, from 1981 to 2017, have continued to validate the power of the method across a wide spectrum of applications.

> **Characteristics Summary**: (1) Reduces the distance between decision makers and workers; (2) A systems approach; (3) Economic feasibility; (4) Democratic; (5) Fixes problems with multi-purpose data; (6) Invents new ideas; (7) Perception of simplicity-sophisticated reality; (8) Macro to micro penetration; (9) Facilitates organizational diagnosis; and (10) Improves performance and productivity.
>
> **Benefits Summary**: (1) A research tool meeting science criteria; (2) Fast and relatively inexpensive; (3) High quality and quantity of data; (4) Elicits ideas for innovations that would otherwise remain untapped; (5) Actually invents ideas both from the individual respondents and from the merging of similar ideas in the data analysis process; (6) Can penetrate to whatever level of detail is needed from top strategy to assembly-line improvements; (7) Removes the fear barrier from participants to candidly make their views known; (8) Reduces the distance between decision makers and workers; (9) Contains inherent data organization and reduction protocols; (10) Fosters "buy-in" to the team mission; (11) Has no cultural biases or limitations; (12) Adapts well to online use for globally dispersed focus groups; (13) Those being surveyed need no previous experience or training to fully participate; and (14) Improves performance.

IDEAS UNLIMITED: DOING IT

Research using Ideas Unlimited takes planning and preparation. There are exceptions to that rule when a discussion leads spontaneously to a "*Target of opportunity.* Planning involves: (1) discussions with the client; (2) creating of one or more focus groups; (3) selecting the best Ideas Unlimited tools for the task; (4) the design of targets to solicit responses; (5) the determination of manual, online or mixed delivery mode; (6) considering data gathering and storage; and (7) identifying the format for feedback to the client. Brief explanation of those process steps follow.

Client Discussions

Every use of Ideas Unlimited has a client – a company, agency, organization, school or entity that has a need. The Ideas Unlimited facilitator/analyst and the client leadership will collaborate to use the power of the method to meet the need. As an example, in 1993, the leadership of the NASA sponsored Strategic Avionics Technology Working Group (SATWG) asked Krone Associates to capture the brainpower of 166 United States aerospace professionals from NASA Headquarters, NASA field centers, aerospace prime contractors, leading avionics systems suppliers, small business supporting NASA programs, professional societies and selected universities. There were five major Focus Area subjects: (1) U.S. National Aerospace Industry Policy; (2) Technology Commercialization; (3) Manufacturing, Operations and Education; (4) Research and Technology Development; and (5) Institute of Electric and Electronic Engineers (IEEE) Parts for Space Systems.

Krone Associates discussions with SATWG leadership, Dr. Kenneth J. Cox, prior to the Houston conference, produced an agenda for the four days, July 19–22, 1993, that included a total of two hours and nine minutes of workshop time dedicated to the five Focus Area subjects. Ideas Unlimited targets were designed for each workshop that generated: (1) Root causes for existing status within the Aerospace Industry; (2) Existing problems, challenges and threats; and, (3) Recommendations for improvements within the five Focus Areas. An average of fifty conference attendees participated in each of the five workshops. To optimize idea capturing, all targets were installed into a computer with monitor in the hotel lobby so any conference participant could type in responses as they walked from session to session. A total of 3,500 responses to the targets, written individually, simultaneously and anonymously on small data pages, or typed into the computer, were captured. Analysis and classification of that data produced a 264-page Final Report. Positive feedback from aerospace professionals continued for years after that report.

That example represents the more complex applications of Ideas Unlimited. But whatever the application – from a 15-minute one-target workshop to a four-day professional conference – the key to success is a-priori client discussions so the *Why?, When?, Who?,* and *How*? questions are answered to facilitator's and the clients' satisfaction.

Focus Groups

The term "Focus Group" is used to identify any number of people being surveyed with Ideas Unlimited. There is only one important criterion for anyone to be a focus group member. He must have experience with, and know-how about, the subject under investigation. Given that the criterion is met, gender, race, nationality, religion, or political ideology is not a variable for success of the application. Experience shows that ages ten years and older can productively contribute their ideas. Those with speech handicaps need not be excluded since responses are written. The method has been used with blind focus groups where their spoken ideas can be recorded accurately.

The fact that the response population for Ideas Unlimited is selected using the research subject as the main variable is different from statistically based surveys where random identification of the population surveyed is required. Another feature different from other methods is that focus group membership can be changed throughout data gathering for a project. Results will not be biased by such changes; it only expands the diversity of those contributing their ideas. That flexibility is a unique advantage of Ideas Unlimited.

Target Design

The term "Target" is used for the question or statement created to stimulate responses from those in the focus group. The design of targets is critical for success. It is one of the two most important skills for the Ideas Unlimited facilitator. Data classification, organization and reduction is the other critical skill. A distinctive feature of Ideas Unlimited databases is that they are **performance oriented**. They identify what is wrong, imperfect, deficient or in need. And they contain large quantities of solutions, recommendations and fixes for those problems. Correct target design achieves those database inputs. Figure 9.1 provides a generalized targeting model.

NOUN OR NOUN PHRASE: HOW TO _____

* Amplifying statement or question
* Amplifying statement or question
* Amplifying statement or question

Figure 9.1 Ideas Unlimited Target Model

The noun or noun phrase pins down the subject under investigation. The "How to_____" wording is what captures the performance oriented responses that tell "How to improve". Amplifying statements are created carefully to lead the respondent into different segments of their memories and experiences relevant to the target and to ensure that the respondents search their memories to capture their anonymous, individual and independent ideas for problem solving. Figure 9.2 is a specific subject example.

COST REDUCTION: HOW TO STOP OUR INSTITUTION'S WASTE, LEAKS AND LOSSES

* Remember specific wasteful incidents.
* Tell leadership how to do more with less.
* You are guaranteed anonymity for all responses.
* If you had complete institutional control what would you change to reduce costs?

Figure 9.2 Ideas Unlimited Solutions Target Example

There is one set of targets where the *How to*_____ is not used. Leadership of any entity continually faces two challenges – identifying problems and finding solutions for those problems. The targets soliciting solutions should always include the "*How to* _____" clause. But, targets designed solely to identify problems have different wording. Figure 9.3 is an example.

LOW MORALE: WHAT PROBLEMS EXIST IN OUR INSTITUTION?

* There is dissatisfaction within the staff of our institution.
* What do you believe are the decreasing morale causes?
* Remember policies, procedures, actions or events that impacted your morale negatively.
* Write them all in your responses.
* Anonymity of your views is guaranteed.

Figure 9.3 Ideas Unlimited Problems Identification Target Design Example

Note that recommendations for solutions are not asked for in Figure 9.3. The "Diagnostic Workshop" principle resembles a visit to the medical doctor. First, he wants to know where the problems and pains are; then, the diagnosis is made and prescriptions for fixing the illness are made. If time is available there can be benefits in targeting the focus group first with a target aimed at only identifying the problems then giving them the follow-up target seeking solutions as the example does in Figure 9.2.

There is an important difference between the problem and the solution targets response databases. If one asks only for problems he or she will not get improvement or solution ideas. But if one asks for solutions, the nature of the problems that drove the wording obtained in responses will reveal the problem – perhaps not as specifically as the wording obtained from a problem-focused target but what caused their recommendation will be apparent. If the facilitator gets a "Fire the boss" recommendation, he or she knows that leadership is the problem. But, if he gets "Our leadership is weak" from a problem target, he does not have a specific solution in the database. That distinction between description and prescription is fundamental. So, when time is very limited, the solution target design given in Figure 9.2 is always used. **What is needed is a database of performance improvement ideas**.

Before giving targets to the focus group, the facilitator should rehearse them with a few, test people to sharpen their precision through editing. He should have this small test group write some responses. Such testing leads to final editing of targets for optimum results.

Face-to-Face or Online Delivery

The Internet has revolutionized communications between individuals, groups, organizations, industries and governments. Real-time idea transmission is becoming a reality. The fundamental principles and goals of the method did not change, but the electronic delivery system expanded applications from the board room, agency office, or school classroom to anyone cyberspace can reach. Simultaneously data storage for Ideas Unlimited began to transition from boxes filled with small slips of paper to databases in computer memory.

But uses for the face-to-face delivery mode remain. There will be situations where using computers or electronic voice input are not feasible or desirable. Applying the method in schools, hospitals, companies, agencies or organizations often is more effectively done manually. It can be easier for the client developed focus group in face-to-face meetings of small groups. Also fitting Ideas Unlimited targets into one-on-one intensive consulting interviews works better manually.

Mixing Manual and Online Modes

Increasingly mixing manual and online modes in applications enhances productivity, quality and quantity of responses. As client time availability has decreased and method effectiveness has increased, a 10-minute one-target workshop, either online or manually, has become more frequently used. At the end of a short manual workshop, the focus group are given an e-mail address. It's a neurological fact that the mind creates new ideas on a subject even though there is no conscious focusing. As we brush our teeth the next morning a new "Aha" may pop out. The reverse process can also work. Sometimes a client and analyst will agree that a face-to-face manual session can be helpful after a series of targets have been addressed online by a focus group.

Focus Group Instructions

Those responding to targets need some brief instructions. For online electronic delivery the focus group is told of the subject to be addressed; anonymity is guaranteed for their responses; and they are asked to reply via e-mail or to input to a blog with as many responses that come to mind.

It is better to have only one target per electronic message. Clients are asked to respond individually and independently from their own experience and know-how. They don't need to wait for their best answer but to type whatever comes to mind with freewheeling thinking. They can send later e-mails if new ideas come to them for that target. If they asked for response examples, they are not given any because it will narrow their thinking which will exclude areas where they have personal experience thus limiting their mental searches. They are simply told to send whatever ideas, intuitions, recommendations, or solutions they have for the subject of the target. The facilitator can offer to send them later some of the data analysis and classification, but the focus group is never sent the entire raw database for it could compromise the guarantee given to all for anonymity.

Client Feedback

Part of the initial discussions with the client needs to address the subject of what the feedback products will be. There is a set of options. The spectrum ranges from instant feedback to a focus group of some of the ideas collected during a workshop, to a verbal report at the end of a day's set of meetings on recommendations that Ideas Unlimited targets captured, to a 264-page detailed report as was done for the 4-day NASA sponsored conference described at the beginning of this chapter. Whatever the complexity of the feedback products from the use of Ideas Unlimited, the client receives recommendations for solving problems, reducing waste, improving processes or accomplishing more output with less input. It's necessary to point out here that the definition of "Client" includes the facilitator when he is using Ideas Unlimited for his personal needs.

Chapter End Thought

Now we are in a new millennium where the winners and the losers in the information age are certain to be differentiated by brainpower. Knowledge-based organizations will be the survivors and nations which amass knowledge most effectively and deploy it efficiently will be the superpowers of the future. Higher education professionals who prepare themselves to teach in, and about, the Information Era will be the leaders of this millennium.

The empires of the future are the empires of the mind.

– Winston Churchill, *The Futurist* (March–April 2004)

PART IV: FUTURE QUALITY NEEDS IN HIGHER EDUCATION

Since World War II, improvements resulting from the Quality Sciences and Quality Management have been steadily increasing in scope. What remains to be done? Parts I, II and III have given a comprehensive history and current status of the Quality Sciences as a survey of the contributions of pioneer professionals. The reader knows why Quality Control and Management were created and how it has expanded from industry and manufacturing into service, defense, medicine, health care, space, environmental studies and most recently to social responsibility. The reader has seen how quality thinking and programs spread globally from Japan after World War II and how the American Society for Quality (ASQ) became the premier professional organization to teach, sponsor and market quality. The reader has studied the progress of quality departments, courses and programs in higher education, seen the definitions of "customer" for that education, and created a systems prescriptive model for college and university administrators wanting to add Quality Sciences education to their schools. And this book has gone further in seeing how the concepts and tools of quality should be applied to transform higher education for the 21st century.

The present, 2017, is much different from the past and the future will be exponentially different than the present. Science and technology have made spectacular advances. Those advances are responsible for significant improvement in the quality of millions of lives. Those advances in productivity also played a role in preventing an even more acute global economic depression with catastrophic outcomes worse than has been experienced to date. But time is not on humanity's side without reversal of many declining societal trends. And some of those science and technology advances have involved Mephistophelean bargains with sinister negative potentials for Earth and its inhabitants.[241] Major societal transformations for improved quality are needed.

This last part of the text challenges global educators to make a paradigm shift in their vision. It identifies those needs in business, in government and in global society where quality is missing or improvement is badly needed. It will overview needs for higher education as the 21st century gets underway in a global environment of uncertainty, adversity, turmoil, and change. It places a responsibility on educators to be leaders for this major advancement of the Quality Sciences. Addressing the macro needs of humanity has been a focus for sociologists, political scientists and theologians throughout the history of education. In 2010, the American Society for Quality included "Social Responsibility" in its spectrum of goals. There is now the recognition by leadership within the Quality Sciences that "doing better with less" remains a critical challenge. The fundamental reason for the Quality Sciences was the need to create more for business and society at lower costs. A major task of higher education is to teach quality theory and the application of that theory, for the continual improvement of business, of government, of science, of technology, of itself, and of global society. Chapter 10 will examine quality needs in leadership, policy and law while Chapter 11 will focus on productivity. Finally, Chapter 12 will look at individual, corporate, and governmental changes that are needed to support quality improvement in higher education around the world.

10 LEADERSHIP, POLICY, AND LAW

Quality programs fail if leadership is not committed, if the formal policy of the organization does not foster and integrate those programs, and if those programs in any way violate existing law. Educators need to both recognize their importance and include them in their instruction and authorship.

MORAL LEADERSHIP NEEDS

Leadership is the most important function of management. Moral leadership is the most important component of leadership. To err is human. Failures due to inexperience, to experiments that don't work, to environmental change, or to unintentional wrong choices due to the four characteristics of this age – uncertainty, complexity, adversity or novelty – can be forgiven. But intentional immoral or unethical behavior is both unforgivable and a major cause of failure in organizations. Moral leadership is the rock on which ultimate success resides. Immoral leadership is a sure path to failure and a top research need for the Quality Sciences. Moral leadership arises from within the person, what a person is. The moral leader is not one who, by rote, follows a set of behavioral standards. People can be trained to create or implement policy. This is only half the equation. The moral leader is more than a person who is conditioned to follow rules of policies. There is a much more complex matrix that underlies behavior than rules or policy can provide. Moral leadership is what one *is*. Moral leadership may well be the outward evidence of inner character and, as such, is that which guides and determines attitude and behavior.

A sinister spin-off from immoral or unethical leadership is corruption. Quality pioneer Philip B. Crosby said, two weeks before his death on August 18, 2001, "Quality boils down to one word – Integrity." It took decades for Crosby's Zero Defects concept to be taken seriously. By 2017, too much business and government have failed to prioritize moral leadership, integrity and honesty. The result has been stalled, declining or missing quality. Quality programs have not stopped corporate corruption, global terrorism, drug cartel criminal actions in Mexico, dishonest personal attacks in the United States political campaigns, corrupt journalism, poverty, unemployment, homelessness, even starvation. Global resources are being consumed by those societal illnesses rather than going to help their victims and those devastated by human or natural disasters. Ten months after the Haiti earthquake on January 12, 2010, one million people remained homeless and in need of healthcare. A cholera epidemic followed and, to add misery to disaster in that small country, tropical storm Tomas caused more than million people to leave Port-au-Prince. But they had nowhere to go. There has been missing quality in Haiti since January 2010.

Creeping corruption is a cancer that, if not stopped, reaches a point of irreversibility. It was a major reason for the failure of the Third Reich and of Communism. It allowed Mexican drug cartels to cripple national governance. Those examples, in 2017, are only representative illustrations of how increasing corruption destroys existing quality. Integrity, morality, ethics and honesty should be the top criteria for advancement to any leadership position. Thus, it is important to create a course in building codes of conduct in schools.

QUALITY POLICYMAKING

It does not require breakthrough thinking on today's problems, in 2017, to reach the conclusion that solutions to global societal issues are increasingly inadequate. Evidence is abundant that Yehezkel Dror's Law #1, published in 1971, remains valid. It reads:

> *While the difficulties and dangers of problems tend to increase at a geometric rate, the number of persons qualified to deal with these problems tends to increase at an arithmetic rate.*[242]

Why does Dror's Law remain valid? It is because the evolution of governance, knowledge, science and technology has brought earth's civilization to the point where redesigning governance to guide needed global transformation is essential. While recognizing that science and technology have improved the quality of most lives and has the real potential of quantum leap improvements, societal self-destruction is now a possibility that must be dealt with by governance. The universal quality need is to increase the capacity to influence decision making to produce a better future. Quality Sciences leadership is sensitive to this need. The Malcolm Baldrige National Quality Award added "Governance and Social Responsibility" to the leadership criteria in 2006. Much of higher education is also sensitive to the need. Converting that sensitivity to improving the quality of policymaking is a goal recommended for all those in higher education.

LAWMAKING NEEDS

Lawmaking and policymaking are interrelated. Our focus is for lawmaking in democratic societies that respond to the known needs of their citizens. We report here on the work of Dr. David G. Schrunk, founder and chairman of the Quality of Laws Institute.[243] Dr. Schrunk is a medical doctor, an aerospace engineer, a space author, and a member of the American Society for Quality. He and Dr. Bob Krone, co-author of this book, have presented his analysis and prescriptions for law-making to ASQ leadership. We summarize it here and recommend that educators seriously study his theory and prescriptions.

Dr. Schrunk asks the question: "Why can't lawmaking be more like the Quality, Medical and Engineering sciences? Why can't it be more like industrial production and the quality services in health care? He has professional experience in all those areas. His Foundation research has concluded that existing lawmaking: 1) does not solve social problems; 2) is devoid of quality; 3) has no problem or goal definition; 4) has no cost/benefit methodology; 5) does not measure its quality performance; 6) is unreliable and unpredictable; 7) evolves through politics and ideology; 8) is inadequate for modern society; 9) creates hundreds of laws every year that exceed the capability of society to either evaluate or enforce; and 9) would be catastrophic for human space settlement governance.

Since laws of government are essential for the liberty, progress and well-being of people, Dr. Schrunk's prescriptions are based in the conviction that a Science of Laws be created that utilizes the tools of Quality Science and design and standards of engineering. His ideal law would be 100% effective, cost efficient, safe, reliable, non-intrusive and meets the needs of societies. He is fully aware of the political feasibility constraints that impede recommendation and adoption of quality sciences based law making. We recommend that higher education, as well as schools of law, study the work of Dr. Schrunk's Foundation. "The End of Chaos" seems to be impossible. Working toward it will be a virtuous goal for teachers and students.

11 PRODUCTIVITY

Since productivity has been extensively covered in Parts I, II and III of this text, this chapter will summarize the theory of productivity and ask the research question required to discuss needs:

Are productivity tools solving problems across the spectrum of global society?

PRODUCTIVITY THEORY

A goal of the quality movement from its beginning by Walter A. Shewhart in the 1930s has been *Doing Better with Less*. The title of Dr. W. Edwards Deming's first chapter in his classic 1986 book *Out of the Crisis* is *Chain Reaction: Quality, Productivity, Lower Costs, Capture the Market.* Productivity is the ratio of output to input where input consists of labor, material, capital and services and outputs are measurements of results in products or services. The set of factors influencing productivity has increased. Productivity increases in work and in life will be a critical path for future success anywhere on earth or as humans learn to live and work in space.

QUALITY NEEDS AND PRODUCTIVITY SOLUTIONS

As the 21st century begins, it is apparent that global problems exist and need breakthrough solutions. Achieving more with the same, or less, will be an essential part of those solutions.

The United States shocked the Third Reich and the world by its mass production of weapons in WWII. Henry Ford began converting his Ypsilanti, Michigan car production plant to make the B-24 Liberator bomber in 1941. By 1942, an assembled B-24, composed of 1.2 million parts was exiting his plant every hour. By 1945, 9,000 B-24 bombers, 650 per month, half of the total the U.S. produced, had been assembled in the Ford Motor Company plant. It's a reasonable assumption that the Allies could have lost WWII without that one breakthrough productivity achievement. Multiplying similar achievements at plants across the nation brought victory to the Allies.

After WWII, the world evolved into three economic zones: a) advanced, industrialized countries (which includes all of the former First World countries; b) emerging market economies (rapidly expanding economies of China, Russia, India, South Africa, Argentina, Mexico, South Korea, Indonesia; and c) lesser-developed countries mostly in Africa and also in Asia and Latin America. Productivity is related to the level of development of a nation. Wars and military forces have complicated linkages to productivity. As illustrated above, productivity has been the reason for winning wars. World military expenditures in 2015 reached $1.62 trillion (2.6% of world GDP) and had increased annually since 2001 (www.globalissues.org). But wars are also devastating individuals, populations and societies and halt economic and social progress by diverting and consuming resources.

The need for Quality Sciences and for national and international leadership is to change the application of productivity to a higher percentage of constructive goals. That's a historic dilemma that the research of Quality Scientists has only recently begun to be focused.

WHERE TO FOCUS?

Dr. Neville Marzwell, one of the world's leading scientists and scholars in space, energy, robotics and their potential for future human progress presented in October 2008 at the NASA Ames Research Center:

> *The solution is mass production, robotics and smarter people and machines. The United States is behind several nations in automated mass production. The U.S. will never compete internationally with human labor.*[244]

What can smarter people, smarter machines and robotics achieve in the 21st century? One just has to look at one of history's top needs – ENERGY. Energy resources continue to consume huge costs and resources and provoke conflicts and wars. Wars kill life, pollute the planet and divert resources and leadership attention that should be devoted to solving long-term humankind needs. Earth's energy needs are projected to fall short of demand by 2050 without breakthrough solutions (see James M. "Mike" Snead – www.mikesnead.net). *The Law of Space Abundance*, formulated by the leadership of Kepler Space Institute in 2009, states: "*Space offers abundant resources to meet human needs."* The feasibility of a Spaced Based Solar System for Earth's needs has been proven theoretically and demonstrated successfully.

What Henry Ford did with manual labor in his B-24 plant in Michigan during WWII is now beginning to be done by robotics. Science and technology already has the knowledge and the means to apply smarter people, smarter machines and robotics to solve Earth's problems. The answer to our research question of "Are productivity tools solving problems across the spectrum of global society?" is, in 2017, "It's beginning to do so." Educators around the globe have the challenge to motivate their students to understand what is now possible and to be a part of future science, technology and leadership that convert dreams and ideas into reality.

TOTAL PRODUCTIVITY PERFORMANCE (TFP), ACCELERATION AND PERSONAL PRODUCTIVITY

So far, the focus has been on labor productivity. Long term national economic performance results from Total Factor Productivity (TFP) which is a measure of a broad set of variables including labor, public policy, increases in labor standards, quality of education, technology increases and ability to quantify those variables.

There are two more productivity variables that are recent additions. The first is the exponential increase of the rate of business transactions since Bill Gates and Microsoft invented a computer operating system that by 1990 enabled computers to electronically talk to each other. Bill Gates became a billionaire and global business transactions began occurring at the speed of light via the Internet.

The next technology paradigm shift occurred at the beginning of the 21st millennium. MySpace and Facebook were launched in 2003 and 2004, respectively. The social network era began. By the publication of this text in 2017, social networking has exponentially increased and was credited with facilitating major national and international happenings – even revolutions. Social networks have changed societies in the decade of their existence. The 21st century youth generations will be dramatically different than those in the 20th century. Ideas and images can now reach millions of people instantly. The mega leap in personal communications has yet to be measured as the newest productivity factor.

The challenge for educators will be to understand, then to guide 21st century students to be leaders on paths to productive and constructive futures for humankind.

12 BREAKTHROUGH THINKING FOR HUMANITY

In Chapter 9, Yehezkel Dror's Law #1, published in 1971, was cited and read:

> *While the difficulties and dangers of problems tend to increase at a geometric rate, the number of persons qualified to deal with these problems tends to increase at an arithmetic rate.*[245]

The authors believe that this statement remains valid in 2017. And even assuming that the number of persons qualified to deal with problems might have increased more than an arithmetic rate, world societal changes have put decision makers into overload. The capacity of governments to deal with problems is obviously inadequate. Humans around the world can now communicate with each other at the speed of light. In this last chapter, the authors take the optimistic view that human brains have proven that breakthrough thinking is feasible. And they shed some light on a few paths.

WHY CHANGE?

The present is much different from the past and the future is bound to be exponentially different than the present. Science and technology has made spectacular advances in the last forty years. Those advances are responsible for significant improvement in the quality of millions of lives. It is believed that those advances also played a role in preventing an even more acute global economic depression with catastrophic outcomes worse than has been experienced to date. But time is not on humanity's side without reversal of many trends. And those same science and technology advances have involved Mephistophelean bargains with sinister negative potentials for Earth and its inhabitants. Major individual, corporate, and governmental changes are needed. This book proposes a research program to do that through *Breakthrough Thinking and Acceleration to Excellence*.

CREATIVITY NEEDS

People achieve goals through process. Exponential increases of many societal changes in the world are requiring paradigm shifts in creative thinking and faster moves to constructive actions. But those requirements are not being met satisfactorily. For decades, the gap between serious problems and leadership qualified to solve those problems has continued to grow. Resulting destructive organizational, societal and environmental events have had local to global effect. Impacts vary from costly to catastrophic. If correction is to occur, major transformations must occur in some areas.

Time is not on global humanity's side without reversal of many trends. History does not reveal evidence that needed improvements will happen autonomously. The assumption that evolution will always result in improvements is a myth. Acceleration and expansion of the scope of quality is not now an option for local, national, or international entities. It's a necessity. Failure will cause huge human and material costs.

WHAT DOES THIS MEAN?

First, quality has not been a top priority for humanity over the past 3,000 recorded years. It has occasionally happened randomly through the history of human evolution for different reasons at different places and in different societies around the world. But improvement of the quality of life has been neither universal nor consistent through time.

Second, given its place in history, the United States has a moral responsibility and the capability to lead a global systems approach to the planning and execution of quality everywhere. The American Society for Quality leadership is to be applauded for creating the vision and initiating that responsibility. It has its risks as well as its future benefits.

Third, this is the launching of a mega-leap for the Quality Sciences. Dr. Joseph M. Juran, on his 94th birthday in 1999, commented on the origin and growth of the Quality Sciences in the 20th century and made the statement "*My belief is that historians in later decades will look back on the 21st century as the Century of Quality*." "Quality for the World" will make Dr. Juran's prediction a reality.

IF WE FAIL

Before presenting how to do breakthrough thinking and acceleration excellence, its significance needs to be emphasized. Human extinction probabilities dramatically increased in the 20th century. Without correction actions in the 21st century, those probabilities will continue to increase. An On the Beach scenario remains a nuclear winter Phantom of the Opera.[246] Science and technology can do more to alleviate human suffering such as hunger and homelessness that impact millions of people today. Governments' capacity to govern remains insufficient. Wars and ethnic conflicts have not stopped. Weapons remain the conflict decision makers where ideas should be the arbitrators. The ratio between the haves and have-nots continues to increase. Retaining the status quo rate of progress is a slow global Pied Piper to a future our descendants will curse us for not preventing.

A NORMATIVE UNIVERSAL MODEL

A General Normative Model is provided for leadership of any organization to include in its decision making for the evaluation and improvement of people and processes to facilitate breakthrough thinking and acceleration to excellence. The prescriptive model on which to base the theory and to design applications is based on the following definitions of *Breakthrough Thinking* and *Acceleration to Excellence*:

- **Breakthrough Thinking** – Visioning of a desired difficult achievement. Assume initially that there are no barriers. Involve cross-cultural and cross-disciplinary people. Keep all ideas – no matter how "crazy". Tolerate ambiguity. Use a systems or full-spectrum approach and ask "What are all the involved qualitative and quantitative variables?" Capture both explicit knowledge (from learning) and tacit knowledge (from living).
- **Acceleration to Excellence** – Insure the goal or task lies within well-defined values system. Start it before breakfast tomorrow. Collaborate for rapid decisions. Delegate to qualified people. Continual communications on progress to revised needed tactics. Substitute thinking of alternatives to bypass moves that may stall progress.[247]

The prescriptions of the *Breakthrough Thinking and Acceleration to Excellence Model* were created for future collaboration and networking. Research and applications will result in editing of the theory and the documentation of real-world global applications. The ten draft prescriptions are listed below with brief descriptions and justifications following.

1) **Moral, Ethical and Inspirational Leadership**
2) **Noble Goals. and Values**
3) **A Streamlined Decision Making System**
4) **A Quality Legal Foundation.**
5) **Redundant Communications .**
6) **Capture Global Tacit Knowledge and Brainpower.**
7) **Defrost Frozen Wisdom.**
8) **Cross-Cultural Learning.**
9) **Continual Evaluation and Improvement**
10) **Have Fun.**

Figure 11.1 Breakthrough Thinking and Acceleration to Excellence Universal Model

This chapter will now turn to how to achieve Breakthrough Thinking and Acceleration to Excellence. The following ten prescriptions are listed by relative importance but should be created simultaneously.

- **Moral, Ethical and Inspirational Leadership**. Without a doubt, this is the most important need. Without inspirational leadership, motivation cannot be sustained. But it, too, will fail if moral and ethical leadership is missing. History and today's news are filled with stories of career and organizational destruction because of immoral or unethical behavior.
- **Noble Goals, Visions and Values**. Purpose drives actions. Individuals and organizations can only be successful if their strategic ends are recognized "good" by all constituents and their values propel means for their actions and desires consistent with a philosophy all team members support.
- **A Streamlined Decision Making System**. For forty years, one of the authors of this book has taught Systems Theory and Management at the doctoral and masters levels. For each class of professionals, he asked: *What are the three most difficult problems in your organization?* With rare exceptions, the two top problems were: *Decision Making System and Communications*. That is true for public, private, not-for-profit, national or international entities. There are valid reasons why those two are very difficult, but for breakthrough advances one must streamline decision making so it pulls people along and not acts as a barrier.
- **A Quality Legal Foundation**. Dr. David Schrunk is a medical doctor, and aerospace engineer, space author and a quality scientist who has compared Quality Sciences applications in health care and aerospace with those in Law. His finding is that law develops through political feasibility and precedent and has no bases in the Quality Sciences nor is it systematically solving social problems.[248] These are profound findings. His findings are consistent with those Policy Scientists whose research has shown that the capacity to govern is not keeping up with global needs.[249]
- **Redundant Communications**. Communications technology is creating revolutions worldwide. Accelerating excellence in the organization after breakthrough thinking, and to invent that thinking, will require full employment of electronic and personal communications.
- **Capture Global Tacit Knowledge and Brainpower**. Tacit Knowledge, i.e., knowledge people have from living, as opposed to Explicit Knowledge that people get from learning, has been researched since the 1950s. Its profound influence on decision making and performance has yet to be fully investigated.
- **Defrost Frozen Wisdom**. This is a program facilitated by current information system technology designed to capture and document for research and applications the breakthrough thinking throughout history.

- **Cross-Cultural Learning**. This is a requirement already being exploited by educators, but in need of acceleration and expansion.
- **Continual Evaluation and Improvement**. Experience has shown that continual improvement is fundamental to Acceleration to Excellence. However, that acceleration needs to spring from good evaluation from research into: (1) What exists?; (2) What is needed and desired for improvement?; and, (3) Do my findings support our goals, visions and values?
- **Have Fun**. The final prescription is to have fun. There is nothing more fun or more rewarding than collaborative intellectual creativity for agreed visions considered good.

The authors conclude that adequate science and technology exists for major needed transformations. The intellectual legacy of past thinkers, combined with the aggregation of today's brainpower, provides the wisdom and the goals. The year 2023 will be the anniversary of Albert Schweitzer's conclusion in Africa that ethical civilization must be the umbrella mission of humanity.[250] The required wisdom exists. The goal is to capture Breakthrough Thinking and Acceleration to Excellence to create human resource-based products from the resources of earth and in space for humanity's benefit and survival.

POSTSCRIPT

We began this book with the statement "The world of higher education is undergoing profound and rapid changes, which force educational systems to respond to ensure that the quality of life in these communities is maintained". We end with these personal thoughts as the manuscript goes to press.

We have given readers our beliefs on why quality is an imperative in higher education, how the quality phenomena have evolved and expanded, and who the pioneers were and what they invented. We included a framework for readers to consider in their own teaching and curricula planning. We documented tools and "How to…" for design and management of improved quality for higher education. We have shared our knowledge of the roadblocks that can be expected and with the needs that we see that remain for the Quality Sciences.

We first met each other in Hong Kong in 1995. We have shared the academic and research world now for twenty-two years. Educators work in a culture that Leonardo da Vinci (1452–1539) described in the late 15th century as:

> *Learning is the only thing the mind never exhausts, never fears, and never regrets. It is one thing that will never fail us.*

The truth sustains teachers and educators when society fails to understand its importance, when budgets fail to adequately compensate and when millions in the world are denied access to quality education and learning.

We urge teachers in higher education anywhere on earth to be advocates of the Quality Sciences. Lead by example. Look for opportunity in change. Be willing to experiment. Change your mindset about time and space. Above all, appreciate the journey that will be fun and that will give new purposes in life.

The work of educators will have long range positive impacts that reach far beyond education. Ignorance and want are cancers of society. Left unresolved, ethical, humane and continually improving human civilization is at risk.

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2017

ENDNOTES

1. Spanbauer, S.J. (1992). *A quality system for education*. Wisconsin: ASQC Quality Press
2. Neuroth, J., Plastik, P., & Cleveland, J. (1992). *Total quality management handbook: Applying the Baldrige criteria to schools*. Michigan: On Purpose Associates.
3. Harris, J.W. (1993). Samford University's quality story. In D.J. Teeter and G.G. Lozier (Eds.), *Pursuit of quality in higher education: Case studies in total quality management* (pp. 17–28). San Fransisco: Jossey-Bass Publishers.
4. Juran, J.M. (1995). *A history of managing for quality: The evolution, trends, and future directions of managing for quality*. Wisconsin: ASQC Quality Press.
5. Ibid., p. 603.
6. Lewis, R.G. & Smith, D.H. (1994). *Total quality in higher education*. Florida: St. Lucie Press.
7. Kirkham, R.L. (1992) *A better way: Achieving total quality*. Utah: American Training Alliance.
8. Juran, J.M., op. cit.
9. Ibid., p. 608.
10. Ibid., p. 610.
11. Rickert, E. (1948). *Chaucer's world*. New York: Columbia University Press.
12. Drummond, H. (1992*). The quality movement: What total quality management is really all about*. London: Kogan Page Limited, p. 11.
13. Juran, J.M., op. cit., p. 615.
14. Reilly, N.B. (1994). *Quality: What makes it happen?* New York: Van Nostrand Reinhold, pp. 2–3.
15. Ibid., p. 3.
16. Juran, J.M., op. cit., p. 622.
17. Reilly, N.B., op. cit., p. 3.
18. Juran, J.M., op. cit., p. 622.
19. Reilly, N.B., op. cit., p. 3.
20. Juran, J.M., op. cit.
21. Lewis, R.G. & Smith, D.H., op. cit.
22. Tenner, A.R. & DeToro, I.J. (1992*). Total quality management: Three steps to continuous improvement*. Massachusetts: Addison-Wesley Publishing Company, Inc.
23. Bolla, Jr. A.J. (1992) Quality legal education by design: Institutionalizing the process change in a law school. In J.W. Harris and J.M. Baggett (Eds.), *Quality Quest in the Academic Process* (pp. 181–206). Alabama: Samford University.
24. Lewis, R.G. & Smith, D.H., op. cit.
25. Juran, J.M., op. cit.
26. Rinehart, G. (1993). *Quality education*. Wisconsin: ASQC Quality Press.
27. Sims, S.J. & Sims, R.R. (Eds.). (1995). *Total quality in higher education: Is it working? Why or why not?* Connecticut: Praeger Publishers, p. 3.
28. Bank, J. (1992). *The essence of total quality management*. U.K.: Prentice-Hall International (UK) Ltd., p. 64.

29. Lewis, R.G. & Smith, D.H., op. cit.
30. Rinehart, G., op. cit.
31. Strickland, B.J. (1992). Reducing the hassle for faculty through QI. In J.W. Harris and J.M. Baggett (Eds.) *Quality quest in the academic process* (pp. 127–143). Alabama: Samford University.
32. Deming, W.E. (1986). *Out of the crisis*. Cambridge: M.I.T. Press.
33. Delavigne, K.T. & Robertson, J.D. (1994*). Deming's profound changes: When will the sleeping giant awaken?* New Jersey: PTR Prentice Hall.
34. Flood, R.L. (1993). *Beyond TQM*. West Sussex: John Wiley & Sons Ltd.
35. Fendt, P.F. & Vavrek, G.M. (1992*). Quality improvement in continuing higher education and service organizations*. New York: The Edwin Meller Press.
36. Delavigne, K.T. & Robertson, J.D., op. cit.
37. Tenner, A.R. & DeToro, I.J., op. cit., p. 19.
38. Bank, J. (1992). *The essence of total quality management*. U.K.: Prentice-Hall International (UK) Ltd.
39. Ibid., p. 71.
40. Flood, R.L. (1993). *Beyond TQM*. West Sussex: John Wiley & Sons Ltd.
41. Ray, S.M. (1990) JIT and Quality. In The Ernst & Young Quality Improvement Consulting Group, *Total Quality: An Executive Guide for the 1990s* (pp. 179–190). Illinois: Richard D. Irwin, Inc.
42. Tenner, A.R. & DeToro, I.J., op. cit.
43. Macdonald, J. & Piggott J. (1993) *Global quality: The new management culture*. California: Pfeiffer & Company.
44. Ibid., p. 170.

45. Fortuna, R.M. (1990). The quality imperative. In E.C. Huge (Ed.), *Total Quality: An Executive's Guide for the 1990s* (pp. 3–25). Illinois: Richard D. Irwin Inc.
46. Bank, J., op. cit., p. 81.
47. Imai, M. (1986). *Kaizen*. Singapore: The KAIZEN Institute, Ltd., p. xxix.
48. Flood, R.L., op. cit.
49. Macdonald, J. & Piggott J., op. cit., p. 81.
50. Ibid., p. 181.
51. Tenner, A.R. & DeToro, I.J., op. cit., pp. 23–24.
52. Juran, J.M., op. cit.
53. Conti, T., Kondo, Y. and Watson, G.H. (2003). Quality management: Current issues and future trends. In T. Conti, Y. Kondo and G.H. Watson (Eds.) *Quality into the 21st Century: Perspectives on Quality and Competitiveness for Sustained Performance* (pp. 237–244). Wisconsin: ASQ Quality Press.
54. Summers, D.C. (2003). *Quality* (3rd ed.). New Jersey: Pearson Education, Inc.
55. Evans, J.R. & Lindsay, W.M. (1999). *The management and control of quality* (5th ed.). Ohio: South-Western.
56. Summers, D.C., op. cit., p. 606.
57. Foster, S.T. (2001). *Managing quality: An integrative approach*. New Jersey: Prentice-Hall, Inc.
58. Thorne, D.M., Ferrell, O.C., & Ferrell, L. (2011). *Business & society: A strategic approach to social responsibility & ethics* (4th ed.). Ohio: South-Western Cengage Learning.
59. Foster, S.T. (2010). *Managing quality: Integrating the supply chain* (4th ed.). New Jersey: Pearson Education, Inc.
60. Ibid., p. 268.
61. Evans, J.R. & Lindsay, W.M. (2005). *The management and control of quality* (6th ed.). Ohio: South-Western, p. 496.
62. Womack, J.P. & Jones, D.T. (2000). From lean production to lean enterprise. *Harvard Business Review.* Massachusetts: Harvard Business School Publishing, 221–250.
63. Evans, J.R. & Lindsay, W.M. (2005). op. cit., p. 497.
64. Womack, J.P. & Jones, D.T., op. cit.
65. Watson, G.H. (2003). Six-Sigma: An evolving stage in the maturity of quality.' In T. Conti, Y. Kondo and G.H. Watson (Eds.) *Quality into the 21st Century: Perspectives on Quality and Competitiveness for Sustained Performance* (pp. 219–236). Wisconsin: ASQ Quality Press.
66. Foster, S.T. (2004). *Managing quality: An integrative approach* (2nd ed.). New Jersey: Prentice-Hall, Inc., p. 401.
67. Ibid., p. 404.
68. George, M., Rowlands, D. & Kastle, B. (2004). *What is lean six sigma?* New York: McGraw-Hill.
69. Brown, M.H. (1994). *Baldrige award winning quality: How to interpret the Malcolm Baldrige award criteria*. New York: Quality Resources, p. 2.
70. Foster, S.T. (2001), op. cit.
71. Feigenbaum, A. (1999, September). New quality for the 21st century. *Quality Progress.* 32(12) 27–35.
72. Goetsch, D.L. and Davis, S.B. (2003). *Quality management: Introduction to total quality management for production, processing, and services.* New Jersey: Prentice-Hall, Inc.

73. Ibid., p. 33.
74. Juran, J.M., op. cit.
75. Maguire, M. (2000). 21 Voices for the 21st Century. *Quality Progress*. 33(1), 27–35.
76. Conti, T., Kondo, Y. & Watson, G.H. (2003) Quality management: Current issues and future trends. In T. Conti, Y. Kondo and G.H. Watson (Eds.) *Quality into the 21st Century: Perspectives on quality and competitiveness for sustained performance* (pp. 237–244). Wisconsin: ASQ Quality Press.
77. Juran, J.M., op. cit., pp. 652–653.
78. Ibid.
79. Tenner, A.R. and DeToro, I.J., op. cit., p. 28.
80. Macdonald, J. & Piggott J., op. cit., p. 83.
81. Goetsch, D.L. and Davis, S.B., op. cit., p. 2.
82. Garvin, D.A. (1988). *Managing quality: The strategic and competitive edge*. New York, Free Press.
83. Pirsig, R.M. (1974). *Zen and the art of motorcycle maintenance: An inquiry into values.* New York: William Morrow & Co., pp. 185, 213.
84. Crosby, P.B. (1979). *Quality is free*. New York: New American Library, p. 15.
85. Garvin, D.A., op. cit., p. 43.
86. Goetsch, D.L. and Davis, S.B., op. cit., p. 3.
87. Ibid., p. 3.
88. Ciampa, D. (1992). *Total Quality: A user's guide for implementation*. U.S.A.: Addison-Wesley Publishing Company, Inc., p. 4.
89. Garvin, D.A., op. cit.
90. Evans, J.R. (2011). *Quality & performance excellence: Management, organization, and strategy* (6th ed.). Ohio: South-Western Cengage Learning, p. 15.
91. Aikens, C.H. (2011). *Quality inspired management: The key to sustainability*. New Jersey: Pearson Education, Inc., p. 452.
92. Foster, S.T. (2010), op. cit.
93. Aikens, C.H., op. cit.
94. Evans, J.R., op. cit.
95. Ciampa, D., op. cit.
96. Ibid., p. 7.
97. Goetsch, D.L. & Davis, S. (1995). *Implementing total quality*. New Jersey: Prentice-Hall, Inc., p. 6.
98. Bounds, G., Yorks, L., Adams, M., & Ranney, G. (1994*). Beyond total quality management: Toward the emerging paradigm*. Singapore: McGraw-Hill Book Co.
99. Ishikawa, K. (1985). *What is total quality control? The Japanese way*. New Jersey: Prentice-Hall, p. 45.
100. Imai, M., op. cit., p. xxiii.
101. Siegel, P. & Byrne, S. (1994*). Using quality to redesign school systems: The cutting edge of common sense*. California: Jossey-Bass Publishers, pp. 18–19.
102. Macdonald, J. (1995). TQM – does it always work? Some reasons for disappointment.' In G.K. Kanji (Ed.)*, Total Quality Management: Proceedings of the First World Congress* (pp. 26–37). London: Chapman & Hall.
103. Ibid.

104. Fields, J.C. (1994). *Total quality for schools: A guide for implementation*. Wisconsin: ASQC Quality Press, p. 6.
105. Murgatroyd, S. & Morgan, C. (1992). *Total quality management and the school.* Philadelphia: Open University Press, p. 189.
106. Fields, J.C., op. cit., p. 7.
107. Feigenbaum, A.V. (1991). *Total quality control*. New York: McGraw-Hill, pp. 828–829.
108. Fields, J.C., op. cit., pp. 7–8.
109. Peters, T.J. (1987). *Thriving on chaos*. New York: Knopf, p. 74.
110. Macdonald, J., op. cit., p. 37.
111. Brown, M.H., op. cit.
112. DeCarlo, N.J. & Sterett, W.K. (1995). History of the Malcolm Baldrige National Quality Award. In J.G. Van Matre (Ed.), *Foundations of TQM: A Reading Book* (pp. 187–201). Florida: Harcourt Brace & Company.
113. Brown, M.H., op. cit., p. 2.
114. Hart, C.W.L. & Bogan, C.E. (1992). *The Baldrige: What it is, how it's won, how to use it to improve quality in your company*. New York: McGraw-Hill, Inc., p. 13.
115. Tuttle, T.C. (1994). Is total quality worth the effort? How do we know?' In D. Seymour (Ed.), *Total quality management on campus: Is it worth doing* (pp. 21–32)*?* San Fransisco: Jossey-Bass Publishers.
116. Lewis, R.G. & Smith, D.H., op. cit., p. 2.
117. Seymour, D. (1992). *On Q: Causing quality in higher education*. New York: MacMillan Publishing Company, p. 25.

118. Lewis, R.G. & Smith, D.H., op. cit., p. 2.
119. Schargel, F.P. (1993, October). Total quality in education. *Quality progress*. 26, p. 67.
120. Zemsky, R., Massy, W., & Oedel, P. (1993, May-June). On reversing the ratchet. *Change.* 25(3), p. 56.
121. Chaffee, E. & Sherr, L. (1992*). Quality: Transforming postsecondary education*. ASHE-ERIC Higher Education Report #3, p 1.
122. Rinehart, G., op. cit.
123. Green, D. (1994). What is quality in higher education? Concepts, policy and practice.' In D. Green (Ed.), *What is quality in higher education* (pp. 3-20)? Great Britain: Open University Press, p. 12.
124. Bonvillian, G. & Dennis, T.L. (1995). Total quality management in higher education: Opportunities and obstacles.' In S.J. Sims and R.R. Sims (Eds.)*, Total quality management in higher education: Is it working? Why or why not* (pp. 37–50)? Connecticut: Praeger Publishers.
125. Green, D., op. cit., p. 13.
126. Ibid., p. 14.
127. Ibid., p. 15.
128. Ibid., p. 16.
129. Ibid.
130. Bergquist, W.H. (1995). *Quality through access, access with quality*. California: Jossey-Bass Publishers.
131. Williams, G. (1993). Total quality management in higher education: Panacea or placebo? *Higher Education*, 25, 229–237.
132. Ibid., p. 230.
133. Roberts, H.V. (Ed.) (1995) *Academic initiatives in total quality for higher education*. Wisconsin: ASQC Quality Press.
134. Williams, G., op. cit.
135. Garvin, D. (1984). "What does 'product quality' really mean?" *Sloan Management Review*, 25–43.
136. Evans, J.R. & Lindsay, W.M. (1999). *The management and control of quality*. (4th ed.) Ohio: South-Western College Publishing.
137. Ibid.
138. Canic, M.J. & McCarthy, P.M. (2000). Service quality and higher education do mix' *Quality Progress*, 33(9), 41–46.
139. Lewis, R.G. & Smith, D.H., op. cit.
140. Corts, T.E. (1992). Customers: You can't do without them. In J.W. Harris and J.M. Baggett (Eds.), *Quality quest in the academic process* (pp. 1–6). Alabama: Samford University.
141. Luke 10:27, *The holy bible*, New King James Version, 2004, Thomas Nelson, Inc.
142. Luke 6:31, *The holy bible*, New King James Version, 2004, Thomas Nelson, Inc.
143. Deming, W.E. (1993). *The new economics for industry, government, education*. Massachussetts: Massachusetts Institute of Technology Center for Advanced Engineering Study.
144. Juran, J.M. (1988). *Juran on planning for quality*. New York: The Free Press.
145. Corts, T.E., op. cit., p. 1
146. Lewis, R.G. and Smith, D.H., op. cit.
147. Foster, S.T. (2007). *Managing quality: Integrating the supply chain*. (3rd ed.) New Jersey: Pearson Education, Inc., p. 139.

148. Byrnes, M.A., Cornesky, R.A., & Byrnes, L.W. (1994*) The quality teacher: Implementing total quality management in the classroom*. Florida: Cornesky & Associates Press.
149. Deming, W.E. (1993). op. cit.
150. Rinehart, G., op. cit.
151. Ibid.
152. Gladieux, L.E. & King, J.E. (1999). The federal government and higher education. In P.G. Altbach, et al (Eds.), *American higher education in the twenty-first century: Social, political and economic challenges* (pp. 151–182). Maryland: The Johns Hopkins University Press.
153. McGuinness, A.C., Jr. (1999). The states and higher education. In P.G. Altbach, et al (Eds.), *American higher education in the twenty-first century: Social, political and economic challenges* (pp. 183–215). Maryland: The Johns Hopkins University Press.
154. Behringer, B. & Kreisky, J. (2004). Background and overview to the expanding community partnerships program. In B.A. Behringer, et al (Eds.), *Pursuing opportunities through partnerships: Higher education and communities* (pp. 23–36). West Virginia: West Virginia University Press.
155. Payton, R.L., Rosso, H.A. & Tempel, E.R. (1991). Toward a Philosophy of Fund Raising. In D.F. Burlingame and L.J. Hulse (Eds.), *Taking fund raising seriously* (pp. 3–17). California: Jossey-Bass Inc., Publishers.
156. Sirvanci, M. (1996). Are students the true customers of higher education? *Quality Progress,* 29(10), 99-102.
157. Noe, J.R. (1986). *Peak performance principles for achievers*. New York: The Berkley Publishing Group, p. 110.
158. Sirvanci, M., op. cit.
159. Bergquist, W.H., op. cit.
160. Ibid., p. 41.
161. Ibid., p. 42.
162. Green, D., op. cit., p. 16.
163. Bergquist, W.H., op. cit.
164. Griffin, R.W. (2003). *Fundamentals of management: Core concepts and applications*. Massachusetts: Houghton Mifflin Company, p. 304.
165. Evans, J.R. & Lindsay, W.M. (2011). *The management and control of quality* (8th ed.). Ohio: South-Western College Publishing.
166. Deming, W.E. (1993), op. cit., p. xi.
167. Ibid.
168. Ibid.
169. 1 Corinthians 12:12, *The holy bible*, New King James Version, op. cit.
170. Foster, S.T. (2010), op. cit., p. 11.
171. Evans, J.R. & Lindsay, W.M., (2011), op. cit., p. 50.
172. Foster, S.T. (2010), op. cit.
173. Deming, W.E. (1993), op. cit.
174. Foster, S.T. (2010), op. cit.
175. Deming, W.E. (1993), op. cit.

176. Ibid.
177. Carroll, A.B. & Buchholtz, A.K. (2006). *Business and society: Ethics and stakeholder management* (6th ed.). Ohio: South-Western.
178. Marchese, T. (1996). Bye, bye, CQI for now. *Change*, 28, 4–5.
179. Blankstein, A. (1996). Eight reasons TQM can't work. *Contemporary Education*, 67, 65–68.
180. Koch, J. (2003) TQM: Why is its impact in higher education so small? *The TQM Magazine,* 15(5), 325–333.
181. Clemmer, J. (1992). *Firing on all cylinders: The service/quality system for high-powered corporate performance* Illinois: Business One Irwin.
182. Maguad, B.A. (2002) Managing for quality: Challenges and opportunities. *Presentation at the American Society of Business & Behavioral Sciences 9th Annual Meeting*, Las Vegas, Nevada.
183. Lussier, R.N. & Achua, C.F. (2001). *Leadership: Theory, application, skill development*. Ohio: South-Western College Publishing.
184. Carroll, A.B. & Buchholtz, A.K., op. cit., p. 189.
185. Freedman, R. (2002). *Confucius: The golden rule*. New York: Scholastic Press.
186. Hosmer, L.T. (1987). *The ethics of management*. Illinois: Richard D. Irwin.
187. Carroll, A.B. & Buchholtz, A.K., op. cit.
188. Goldberg, D.T. (1989). *Ethical theory and social issues: Historical texts and contemporary readings.* Florida: Rinehart and Winston, Inc.
189. Cooper, D.E. (2001). John Stuart Mill. In J.A. Palmer (Ed.), *Fifty major thinkers on education: From Confucius to Dewey* (pp. 104–108). New York: Routledge.

190. Freedman, R., op cit.
191. Drucker, P.F. (1985). *Management: Tasks, responsibilities, practices*. New York: Harper & Row, Publishers, p. 368.
192. Carroll, A.B. & Buchholtz, A.K., op. cit.
193. Fisher, C. & Lovell, A. (2006). *Business ethics and values: Individual, corporate and international perspectives*. England: Pearson Education Limited.
194. Bottorff, D.L. (2004) *Ethics failures: What do they really cost business?* Retrieved December 19, 2005, from http://www.ethicsquality.com/about.htm#failure.
195. Deming, W.E. (1986), op. cit.
196. Evans, J.R. & Lindsay, W.M. (1999), op. cit.
197. Gagne, M.L., Gavin, J.H. & G.J. Tully, G.H. (2005). Assessing the costs and benefits of ethics: Exploring a framework. *Business and Society Review.* 110(2), 181–190.
198. Carroll, A.B. & Buchholtz, A.K., op. cit.
199. Ibid.
200. Evans, J.R. & Lindsay, W.M. (1999), op. cit.
201. Bottorff, D.L., op. cit.
202. Ibid.
203. Ibid.
204. Ibid.
205. Delavigne, K.T. & Robertson, J.D., op. cit., p. 185.
206. Deming, W.E. (1986), op. cit.
207. Siegel, P. and Byrne, S., op. cit., p. 67.
208. Lewis, R.G. and Smith, D.H., op. cit., p. 114.
209. Tuttle, T.C., op. cit.
210. Covey, S.R. (1989). *The seven habits of highly effective people: Restoring the character ethic*. New York: Simon & Schuster.
211. Deming, W.E. (1993), op cit., p. 119.
212. White, E.G. (1952). *Education*. California: Pacific Press Publishing Association, p. 225.
213. Mink, O. (1991). We are not in Kansas anymore, Toto: Creating new organisational paradigms for change. *Total Quality Management Institute 1991 Conference Proceedings*. Melbourne: TQMI.
214. Lewis, P.H. (1994). Creating a culture of leadership. In S.A. McDade and P.H. Lewis (Eds.), *Developing Administrative Excellence: Creating a Culture of Leadership* (pp. 5–9). San Fransisco: Jossey-Bass Publishers.
215. McDade, S.S. & Lewis, P.H. (1994). Editor's notes. In S.A. McDade and P.H. Lewis (Eds.), *Developing Administrative Excellence: Creating a Culture of Leadership* (pp. 1–3). San Fransisco: Jossey-Bass Publishers.
216. Hart, C.W.L. & Bogan, C.E. (1992) *The Baldrige: What it is, how it's won, how to use it to improve quality in your company*. New York: McGraw-Hill, Inc., p. 188.
217. Ibid., p. 190.
218. Imai, M., op. cit., p. xxiii.
219. Byrnes, M.A., Cornesky, R.A., & Byrnes, L.W., op. cit., p. 123.

220. Lewis, R.G. and Smith, D.H., op. cit
221. Hart, C.W.L. & Bogan, C.E., op. cit., p. 152.
222. Lewis, R.G. and Smith, D.H., op. cit, p. 157.
223. Byrnes, M.A., Cornesky, R.A., & Byrnes, L.W., op. cit., p. 137.
224. Lewis, R.G. and Smith, D.H., op. cit, pp. 233–234.
225. Peters, T.J., op. cit., p. 74.
226. Lewis, R.G. and Smith, D.H., op. cit, pp. 233.
227. Ibid.
228. Ibid.
229. Will Durant, *The Story of Philosophy*, first published 1926, 2nd Edition, 1953, Simon and Schuster, New York, p. 26–27. Durant credits D. G. Ritchie's *Plato*, Edinburgh, 1902 with first details of Plato's Doctrine of Ideas.
230. In the famous German story "Dr. Faustus," written by Christopher Marlowe in 1592, Dr. Fausutus sold his eternal soul to Mephistopheles, the Devil, for worldly gains, History is filled with tragedies fitting the metaphor. For some examples, see Robert M. Krone, Ph.D., *Essays for Systems Managers,* Chapter 10, "Mephistophelean Bargains," pp. 41–43.
231. Dror, Y. (1971). *Ventures in policy*. New York: American Elsevier, p. 2.
232. Schrunk, D.G. (2005). *The end of chaos: Quality laws and the ascendancy of democracy*. California: Quality of Laws Press.
233. Video recorded by Robert M. Krone, October 15, 2008.
234. Dror Y., op. cit.
235. On the Beach was a 1958 film, directed by Stan Kramer describing human extinction progressing over the Earth from nuclear bomb radiation.
236. On October 17, 2009, Robert M. Krone presented an *Acceleration to Excellence* brief to the leadership of the American Society for Quality (ASQ) recommending that it become an ASQ Strategy and learning Subject.
237. Schrunk, D.G., op. cit.
238. Dror, Y. (1994). *Capacity to govern*. London: Frank Cass.
239. Albert Schweitzer created his philosophy for a universal ethical philosophy for all humanity. In *Civilization and Ethics* (*The Philosophy of Civilization*, Vols I & II of the projected but not completed four-volume work), A. & C Black, London 1923. Material from these volumes is rearranged in a modern compilation, *The Philosophy of Civilization* (Prometheus Books, 1987).

INDEX

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