Review of Literature

Introduction

*Literature Review* or *Review of Literature* is a comprehensive survey of the works which aims to review the critical points of current knowledge published in a field of study, or related to a particular topic of research, usually in the form of a bibliographic essay or annotated list of references in which attention is drawn to the most significant works. In scholarly journals that publish original research, the first section of each article is usually devoted to a review of the previously published literature on the subject, with references in the text to a list of works cited at the end. Literature review is a conceptually organized combination of a literature search results that provides a context for the research. It is neither a summary of the literature, nor merely description of the works, but it is a critical piece of information. It involves thorough study and analysis of available literature on the problem under study. Dellinger (2005) suggested that after the finalization of research topic, one must start literature review. Literature review helps the researchers to refine ideas, know specifications of research procedure, adds to the clarity and understanding of things to be done during research.

Review of literature reveals that, there is no consensus regarding definition of total quality management. However, keeping in view the research problems of the present study and objectives of the university libraries, a suitable and workable definition of TQM has been used. Juran (1960) expresses his essential message to managers through the three basic quality related processes: quality planning, quality control and quality improvement which has become known as the Juran trilogy handbook for Japanese quality circles. Conway (1979) defines quality as a result of quality management which is the development manufacture, administration and distribution of consistent low-cost products and services that customers want and need’. He also teaches that quality is about constant improvement in all areas of operations. These areas include suppliers and distributors; it is just as vital to achieve statistical control of your vendor as it is to have it internally.
2.1 The Concept Explanation

In the global marketplace increased levels of competition have resulted in quality becoming of increasing importance to organizations and consequently Total Quality Management (TQM) has become a key management issue. A considerable number of companies are applying TQM and the topic is the subject of many books and papers. As the end of the 20th century approaches, TQM appears to be a well-accepted system of management. Yet two decades ago the term was not used. What has been the process of development of TQM theory and practice and when and why did the term come into being? This paper attempts to answer these questions. Before discussing the origins of TQM it is necessary to examine definitions of the term. This is not an easy task as almost every writer on the subject has their own definition, by and large devising it to suit their own beliefs, prejudices and business and academic experiences. To some degree this is also true in the organizations which have introduced a TQM approach to managing the business. The result is a proliferation of unique definitions which confounds comparisons and adds to the difficulties of understanding and analysis. Even with the publication of an international definition of TQM in ISO 8402 (1994) there is ample evidence that writers and researchers do not stick to this definition and create their own unique offering. Moreover, as Hackman and Wageman (1995) state, a large number of interventions not related with TQM are being encompassed under the TQM banner; this further complicates the issue of definition and understanding. Despite the divergence of views on what constitutes TQM there are a number of common elements running through the various definitions (e.g. top management support, customer and supplier relationships and employee involvement). Several writers have tried to define the different dimensions that shape TQM, including Ahire et al. (1996), Dale et al. (1994), Flynn et al. (1994) and Saraph et al. (1989). Table 1 contains an analysis by the authors of the common dimensions. The TQM begins with a brief historical review of the different stages that preceded the birth of TQM. A comparative analysis of the Japanese approach to quality management and an examination of Feigenbaum’s (1961) concept of Total Quality Control are made, these constitute
two of the major inputs into the development of TQM. The visions of the quality management gurus are also examined.

Crosby (1984) defines “it is a journey not a destination”. This is a crucial point as one of the most important elements of quality is continuous improvement, we recognize that our customers and the context within which we work are constantly changing, it becomes essential that our services response to these new challenges. Similarly, it is important that the approach to quality which we adopt is appropriate to these circumstances. Ishikawa (1985) said in his book what is Total Quality Control? Those seven basic tools are indispensable for quality control. These are Pareto analysis, fishbone diagrams, stratification, tally charts, histograms, scatter diagrams and control charts. With these tools, Ishikawa argued, managers and staff could tackle and solve the quality problems facing them. Crosby (1989) lists four new essentials of quality management which he calls ‘the absolutes’.

i. Quality is defined as conformance to requirements, not as goodness.

ii. Quality is achieved by prevention not appraisal.

iii. The quality performance standard is zero defects (a concept he inverted in the 1960s when he worked for the Martin company on missile projects) and is best known for no acceptable quality levels.

iv. Quality is measured by the price of non-conformance, not by indexes.

Crosby’s definition of quality is ‘conformance to requirements’. He discusses conformance and non-conformance rather than low and high quality. Brockman (1992) has defined that “Total Quality Management is a management philosophy embracing all activities and practices through which the needs and expectations of the customer and the community, and the objectives of the organization, are satisfied in the most efficient and cost effective way by maximizing the potential of all employees in a continuing drive for improvement”. The exogenous variables of the model are three dimensions of the environment: dynamism, munificence and complexity. These attributes represent the main characteristics of the environment considering the resource dependence and organizational
population ecology theories. Furthermore; they have frequently appeared in the
literature for analyzing the effects of the environment on organizations and their
performance.

Despite organizational environment is a fundamental concept in management
theory, there is little consensus regarding its conceptualization and measurement.
Environment can be thought in terms of the elements that influence the
organization. For instance, Blagday made the distinction between general and task
environments (customers, suppliers, competitors and regulatory groups). (A
second approach is to analyze the environmental characteristics). This view is
useful to test its relationship to organizational structures, processes, technologies
and outcomes. Many authors have identified several environmental dimensions,
but three constructs are common to most environmental research: dynamism,
munificence and complexity. Dynamism or instability reflects the rate of
environmental change. Turbulence or volatility are similar terms to dynamism,
and are related to the degree of novelty in the changes or to their speed.
The first endogenous variables in the model are three dimensions of TQM:
customer focus, continuous improvement and teamwork. Although TQM covers
much more than these three aspects, the selection is based on two arguments.
First, they are a reflection of the basic TQM principles and the literature has
widely accepted the fact that they represent the main characteristics for
differentiating TQM from the contents of other management systems. One
problem in reaching consensus on TQM content is the broad range of dimensions
included by several authors. Saraph et al represented the first set of empirically
validated integrated quality management elements. More recently, Fullviton
(2003) developed a more comprehensive set of TQM implementation constructs
with a rigorous statistical validation process. From a theoretical perspective, Dean
and Bowen present an overview of TQM that captures its most important features.
These authors conceived the TQM “as a philosophy or an approach to
management that can be characterized by its principles practices and techniques.
Its three principles are customer focus, continuous improvement, and teamwork,
and most of what has been written about TQM is explicitly or implicitly based on
these principles. Customer focus reflects the major goals of quality management, i.e. to meet or exceed customer expectation. Customer focus must be reflected in the overall planning and execution of quality efforts. Continuous improvement means a commitment to constant examination of technical and administrative processes in search of better methods. This philosophy recognizes that performance must always be improved because the competition never rests. Secondly, previous studies have used these dimensions. These three principles related to different outcomes such as employee satisfaction, communications or perceptions about the work environment. Gatewood and Riorden take this into account for studying the relationship between TQM, certain organizational practices, employee attitudes and customer satisfaction.

Organizational performance appears as a second-order endogenous variable in the model, understood in the terms and which means the consideration of performance in a wide sense. According to these authors the performance domain has three levels: financial, financial and operational, and organizational effectiveness. Business performance is referred to the use of indicators that reflect economic goals of the firm as profitability, return of investment, or earnings per share. A broader conceptualization of business performance would include indicators of operational performance that focuses on key operational factors such as technological efficiency, product quality, new product introduction, or marked-share. Finally, organizational effectiveness include others organizational goals and the influence of multiples constituencies or stakeholders.

### 2.2 An Historical Perspective

Powell (1995) makes the points that: “TQM’s origins can be traced to 1949, when the Union of Japanese Scientists and Engineers formed a committee of scholars, engineers, and government officials devoted to improving Japanese productivity, and enhancing their post-war quality of life” and “American firms began to take serious notice of TQM around 1980.” It can be argued that many of the TQM dimensions outlined in Table 1 were being applied by organisations before the TQM movement appeared; consequently, it is not easy to establish the exact date of birth of the term TQM. Stueipnagel (1993) considers that in Ford and
Crowter’s book “My Life and Work”, published in 1926, the origins of TQM can be found. Nevertheless, it is clear that the term and the philosophy as a whole appeared around the mid 80’s. Bemowski (1992) states that the term TQM was initially coined in 1985 by the Naval Air Systems Command to describe its Japanese-style management approach to quality improvement.

Perhaps, the main reason for the origin of the term TQM could be a substitution in the previously used term of Total Quality Control (TQC), the word “control” by “management” with the reasoning that quality is not just a matter of control, it has to be managed. This is reinforced by Deming’s (1982) view that sampling inspection should be suppressed and also by Crosby (1979) who makes the point that control is not necessary when a zero defects level is achieved. The term “control” is sometimes understood as meaning control over the workforces’ activities, and this is clearly not the aim of TQM (Godfrey et al., 1997).

In the USA the development of quality management resulted from the penetration of its markets by Japanese products which started in the 70s, together with the impact of the writings of Crosby, Deming, Feigenbaum and Juran. Consequently, companies and academics studied the works of these authors and others, such as Ishikawa, and, integrating their approaches with quality management, gave rise to the concept of TQM. This movement was exported to other countries, the UK being one of the first. Dale, who started his research in quality management back in 1981, believes that the term TQM arose in the UK from the activities of the Department of Trade and Industry National Quality Campaign which was launched in 1983 and the pioneering work of organisations such as IBM. He relates a discussion with John MacDonald (one of the stalwarts of the UK quality management and the first Managing Director of Crosby Associates UK Ltd.) who mentioned that around mid 1986 he was using the term TQM in his cross-Atlantic communication with Philip Crosby, who responded with the retort “what is TQM”? It is also worth mentioning that in the early to mid eighties the use of quality-related terms and acronyms was nothing like as pronounced as it is today.

It can be seen that at the beginning of the 90s, the use of the term was already
widespread, reaching a peak in 1993. Since then, the number of papers using the term has been in decline, although maintaining some importance in relation to volume of material. It is the authors’ opinion that this decrease in the number of papers is because TQM is widely known and accepted and is not attracting the attention from writers as it once did. However, some of the most recent incorporations into TQM, such as benchmarking and self assessment, have been the subject of further treatment in the management literature. If the origins of the TQM dimensions are traced and analyzed, the following key points emerge:

i. Those related with workforce management and the need for top management leadership have their origins in the USA, arising from the Hawthorne studies (Roethlisberger and Dickson, 1939), the works of Maslow (1954) and McGregor (1960) and, more recently, that of Ouchi (1981).

ii. With respect to process flow management, SPC has its roots in the USA with Shewhart (1931) and the UK with Dudding (BS 600 (1935)). On the other hand, mistake proofing systems are a Japanese idea (Shingo, 1986), as is the importance of cleanliness and organization of tools and housekeeping using the 5s and CANDO (cleanliness, arrangement, neatness, discipline and orderliness) principles.

iii. The concern about consumers needs has been of inherent interest to marketing theorist since it first appeared, the main development work on this subject has been conducted in the USA. The increase in competition and demanding consumers have been the main reason for companies treating this need to listen to “customers’ voices” in a serious manner.

iv. Most of the recommendations about design processes have arise from observation of Japanese procedures and best practices. Taguchi methods (Taguchi, 1986) were developed by Genichi Taguchi, a Statistician and electrical engineer who was involved in rebuilding the Japanese telephone system. Quality function deployment (QFD) methods were also developed in Japan, but, as with the case of many other Japanese management tools and techniques, they have been popularised world-wide by North American writers such as Hauser and Clausing (1988).
v. The grounds of the supplier relationship dimension can be found mostly in JIT theories, which were first developed in Toyota (Monden, 1983).

vi. The role of the quality department has been widely analyzed by American writers such as Feigenbaum (1991) and Juran et al. (1974).

vii. Benchmarking was first developed in Xerox, an American company (Tucker et al., 1987) and popularized by the work of Camp (1989).

A brief resume of the historical events that have influenced the development of TQM theory and practice is provided in Table 3, indicating a gradual emergence of TQM. The use of statistical methods and the fundamentals of the system of workforce management began to be developed early in the century and Japan developed its TQM approach gradually from the end of the second world war. At the end of the 70’s and the beginning of the 80’s, Japanese pressure and the success of some American writers created a general concern about the focus on quality management in the USA, and from this country to the rest of the world. The publication of the Malcolm Baldrige National Quality Award and other similar awards in other countries was the official recognition of the importance of TQM.

2.3 Comparisons between Japanese And American TQC

Feigenbaum (1956, 1961) was the first author who used the term TQC. In his first book on TQC (Feigenbaum, 1961) (a revision of the book original published under the title “Quality Control” in 1951), he defined TQC as “an effective system for integrating the quality-development, quality maintenance, and quality-improvement efforts of the various groups in an organization so as to enable production and service at the most economical levels which allow for full customer satisfaction”. He considered that “control must start with the design of the product and end only when the product has been placed in the hands of a customer who remains satisfied”. In this book Feigenbaum recognized that all departments in a company have some responsibility for the achievement of quality, as it was originally perceived by Feigenbaum. However, TQC did not include many of the elements (e.g. supplier developmental relationships, people empowerment and teamwork) that are now considered part of the TQM concept.
Japanese companies have developed their own approach to TQC, based on the teachings of Deming and Juran, shaping it to suit their own culture and operating environment along with the development of a new set of tools, techniques and operating systems. In the authors’ opinion Ishikawa was mainly responsible for shaping Japanese style TQC. His definition of TQC or Company Wide Quality Control (CWQC) is: “Quality control consists of developing, designing, producing, marketing, and servicing products and services with optimum cost-effectiveness and usefulness, which customers will purchase with satisfaction. To achieve these aims, all the separate parts of a company must work together” (Ishikawa, 1990).

Analysing Feigenbaum’s and Ishikawa’s definitions, it can be seen that there are no major differences. However, Ishikawa (1985) is of the view that the difference between CWQC and Feigenbaum’s approach is that, whilst Feigenbaum advocates that TQC is conducted essentially by QC specialists, CWQC has never been an exclusive domain of such specialists. Indeed analyzing the work of Feigenbaum (1961), it can be seen that the focus on the participation of employees is weak and the task of improving quality is given to managers. According to Garvin (1988), the term CWQC was introduced in Japan in 1968, some ten years after Feigenbaum introduced the term TQC. Garvin (1988) states that “CWQC includes four principal elements: the involvement of functions other than manufacturing in quality activities; the participation of employees at all levels; the goal of continuous improvement; and careful attention to customers’ definitions of quality”. He considers the confusion between CWQC and TQC to be widespread because “whereas some experts use the terms interchangeably others see CWQC as a more advanced and comprehensive concept”. It is interesting that in Japan for the last three years there has been discussion of the differences between TQC and TQM and the latter term is now starting to be used by both organizations and academics. The differences in Japanese and Western views may relate to differences in culture, politics and company philosophy. Ishikawa (1989) identified fourteen areas of difference between Japan and the West, including:
i. In the United States and Western Europe, great emphasis is placed on professionalism and specialization; “QC only for QC specialists”.

ii. In the United States and Western Europe, great emphasis is placed on the Taylor system.

iii. The pay system in the United States and Western Europe is based on merit (to motivate people by money alone). Japan uses a system of seniority and ranking.

iv. High turnover rates and layoffs are found in the West; Japan has a lifetime employment system.

v. Relationships with subcontractors - 70% of a product’s manufacturing costs are contributed by outside suppliers in Japan, and only 50% in the United States. Subcontractors are treated as friends not enemies as in the case in the west.

vi. Old-style capitalism vs. democratization of capital: short-term profits vs. long-term profits.”

These six differences, together with political and cultural differences have meant that the TQM approaches in Japan, the USA and Europe are different. Although the Japanese model has a proven successful track record, the existence of differences is not necessarily an indicator that the Western model is inferior, since, as Ishikawa (1989) advocates, companies must adapt CWQC to the country or company according to differences of social background. In the last decade numerous success stories have emerged of TQM applications in Europe and America. Abo (1995) demonstrates how the management of manufacturing systems of Japanese multinationals is different in Asia, Europe and the USA. These differences indicate that Japanese multinationals have had to adapt their management systems to the different conditions of countries. On the other hand, Ebrahimpour (1988) and Garvin (1986) examine how Japanese companies operating in the USA have successfully applied some of the features of the quality management approach they employ in Japan. Examining the ISO 8402(1994) definition of TQM, it is clear that TQC and CWQC are essentially TQM. However, differences in its application in companies, due partially to the differences that Ishikawa (1989) identified,
still exist and this will always be the case.

Imai (1996) introduces to the world the concept of “Kaizen” which has similar implication as of TQM. Kaizen is rooted in Japanese cultural tradition and is derived from KAI meaning ‘change’ and ZEN meaning ‘good’. Kaizen is an umbrella concept which covers all good practices. The ultimate goal of Kaizen is quality, cost and delivery, Gemba is the real place of work which supplies data and reflects the quality of management. Standard is the starting point as Kaizen says. A significant number of articles in the literature on organizational environment have studied its dimensions focusing on different conceptions. These environmental characteristics have allowed authors to specify how the environment affects different structural and strategic aspects and performance. This is the case of the papers by Dev and Beard.

2.4 TQM: Outlook of the Quality Management Gurus

Crosby, Deming, Feigenbaum, Ishikawa and Juran can be considered the most important gurus of the quality management movement. However, this does not mean that their approaches are the same. The views of Feigenbaum and Ishikawa have already been considered and the focus of attention is now turned to Crosby, Deming and Juran. Deming achieved great popularity in 1980 after the NBC television documentary about success in Japan where he was considered a key element. Although Deming maintained a contrary position with respect to some of the TQM elements (e.g., zero defects and quality costing) (Deming, 1982, 1986), a considerable number of authors (e.g. Davis and Fisher, 1994, Grandzol and Traaen, 1995, Milakovich, 1991, Pollock, 1993, Rago, 1994, Schay, 1993 and Tamimi and Gershon, 1995) consider him as one of the main supporters of the TQM concept. English (1996) considers that Juran is related with TQM and Drensek and Grubb (1995) and English (1996) also consider that Crosby is a TQM theorist. Hackman and Wageman (1995) state that Deming, Ishikawa and Juran can be considered the founders of the TQM philosophy, “since TQM drinks in their works”. Surprisingly, they do not mention Feigenbaum, the originator of the term TQC, which as shown in this paper has many similarities with the term TQM. However, they also consider that “what many organizations are actually
implementing is a pale or highly distorted version of what Deming, Ishikawa and Juran laid out”. Juran does not use the term TQM in his main book “Quality Control Handbook” (Juran et al., 1974, Juran and Gryna, 1988) nor in “Juran on Planning for Quality” (Juran, 1988). In “A History of Managing for Quality” he uses less than one page to explain TQM and considers that the best definition of TQM can be found in the “criteria used to judge the applications for the United States’ Malcolm Baldridge National Quality Award” (Juran, 1995). Neither does Crosby in “Quality is Free” (1979), nor in “Quality without tears” (1987) nor in “Completeness. Quality for the 21st century” (1992).

A brief comparison of the ideas of these five quality gurus in relation to the TQM dimensions can be seen that the need of top management support and the importance of customer relationship is shared by all. Benchmarking is not considered by any of them, perhaps because this technique came to the fore when they already had a well-proven approach to quality management. Deming and Crosby focus their approaches in the production process without referencing the design process; however, their views are different, since Crosby defends the achievement of zero defects through employees’ commitment, whereas Deming criticizes slogans and exhortations to achieve zero defects. The supplier relationship, the quality data and reporting dimensions are not considered in any detail by the five authors, but important differences do not appear to exist. Ishikawa’s approach is more employee focused than the other four, which consider that quality management needs to be guided mainly by managers. Juran, Ishikawa and Feigenbaum devote chapters of their books to sampling inspection, whereas Deming criticizes this technique and Crosby considers that it is not necessary in a zero defects environment.

Jurow and Barnard, (1993) TQM is “a system of continuous improvement employing participative management and centered on the needs of customers. Key components of TQM are employee involvement and training, problem – solving teams, statistical methods, long-term goals and thinking, and recognition
that the system, not people, produces in efficiencies. Libraries can benefit from TQM in three ways; breaking down interdepartmental barriers; redefining the beneficiaries of library services as internal customers (staff) and external customers (patrons); and reaching a state of continuous improvement.

Conclusion
It has considered that the evolution of the elements, practices and mechanisms that define TQM. It has been shown that, whilst the term TQM only began to be popularized in the second half of the 80s, many of the elements that have shaped it were developed early, during the 1950 to 1970s. Most theoretical developments in the advancement of the concept have been made in the USA whereas Japan has held the initiative in terms of application.

The lack of a total agreement about how to apply TQM, as supported by the differences in the views of the leading quality management gurus. For example, the need for focus on workforce management is widely accepted but the proposed ways in which to apply this form of management are different. Other elements of TQM, such as benchmarking and supply chain management, are not considered in any detail by the shapers of the TQM concept. Differences in the application of TQM amongst different countries also appear to exist. Since the culture of the company influences the approach to the application of TQM, different countries with different cultures apply TQM in different ways. However, as we approach the end of the century, economies and societies are becoming increasingly inter-related and these differences are diminishing.
References


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