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Leadership and HR Focus in TQM Research in Australia: An Assessment and Agenda

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ABSTRACT: Empirical studies indicate that only a handful of the soft TQM elements contribute to organisational performance. The elements of soft TQM, such as executive commitment, loyalty, teamwork and empowerment, training and education, are essentially leadership and human resource (HR) aspects. The objective of this study is to examine the state of leadership and HR focus in TQM research in Australia from published literature and to determine the areas for future research. The literature search covered 31 reputable referred journals over the years 1985 –1999 and identified 90 articles which focused on aspects of total quality management (TQM). However, it was not possible to identify the primary focus of 23 articles which were either conceptual papers and did not address any specific criterion of the Australian Business Excellence (ABE) Framework, or addressed all criteria in general. Hence these articles were not considered for further analysis. The rest of the articles (67) were classified using the seven criteria of the ABE Framework and it was found that about 40% of the reviewed articles had leadership and HR as primary focus. The review shows that considerable attention has been devoted to research in strategic direction, organizational culture of the leadership category and, involvement and commitment, and effectiveness and development of the people category. Further research is necessary in areas such as top managements' role in environmental issues and community contribution, health, safety and well-being of employee, and disseminating leadership throughout the organization.

Keywords Australia, Australian Business Excellence Framework, HR, Literature review, TQM.

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Introduction

Leadership and human resource (HR) management have far-reaching implications for the management of total quality. Deming and other quality gurus have emphasised these two elements of management time and again. Top management acts as a driver of total quality management (TQM) implementation and HR can be responsible for significant differences between the performances of organizations with similar technological capabilities (Kochan, *et al.*, 1995). Many rigorous attempts have been made to identify critical elements of TQM (Saraph *et al*.,1989; Flynn *et al.*, 1994; Powell, 1995; Black and Porter,1996; Ahire *et al.*, 1996; Dow *et al*., 1999 and Rahman, 2001). The TQM elements identified in these studies can be categorised into two distinct groups: soft TQM and Hard TQM (Powell, 1995; Dow *et al*., 1999). Most of these studies indicated that only a handful of the soft elements of TQM contribute to organisational performance. For instance, Powell (1995) found that only three of his 12 factors, such as executive commitment, open organisation, and employee empowerment, were significantly correlated with overall corporate performance. Based on this study, Powell (1995, p.15) concluded that 'organisations that acquire them [elements of soft TQM] can outperform competitors without the accompanying TQM ideology'. Dow *et al*. (1999) also found three out of their nine factors to have a significant positive association with organisational performance. These three factors are workforce commitment, shared vision, and customer focus. Both Powell (1995) and Dow *et al*.(1999) found aspects of hard TQM such as statistical process control (SPC), the use of benchmarking, and the flexible manufacturing systems to be unrelated to organisational performance.

Over the last decade, many Australian organisations have embraced TQM as an effective management philosophy. During this period Australian researchers have published widely on various issues of quality management in the context of Australian business. The objective of this study is to examine the state of leadership and HR focus in TQM research in Australia and to determine the areas for future research. Such a study will help researchers understand the development and progress of the field to date and will help to draw out an agenda for future research.

Review of past studies

International study

While many studies have examined and provided useful insights on research directions in the field of operations management (Buffa, 1980; Amoako-Gyampah and Meredith, 1989; Pannirselvam *et al.*, 1999; Prasad and Babbar, 2000), so far only one major study has been conducted to review and classify the published literature and provide insights on research directions in the field of TQM (Ahire *et al*., 1995). By reviewing articles published in 44 referred journals that serve as outlets for quality and operations management research, Ahire *et al.* (1995) identified 226 TQM related papers for a period between 1970 and 1993. They classified the reviewed articles using two-dimensional scheme: article orientation and article focus. Based on the 'article orientation scheme' they grouped the articles as overview, conceptual, case study, empirical, analytical and simulation. The study found that the primary focus had been on conceptual and practitioner-oriented articles and case studies. Only a few large scale empirical research articles had been published. They concluded that for TQM to develop into a formal discipline of study, a proper balance must be struck between conceptual research and case studies on one hand and empirical and analytical research on the other.

Based on the 'article focus scheme' Ahire *et al* (1995) classified the reviewed articles according to the criteria of the Malcolm Baldrige National Quality Award (MBNQA) framework. They concluded that TQM literature published between 1970 and 1993 lacked an in-depth examination of issues related to the seven criteria of the MBNQA framework. They suggested that more research should be undertaken in examining the links between MBNQA criteria and organisational performance. During this period only one empirical study

investigated the effectiveness of TQM constructs (Saraph *et al.*, 1989). Since then several studies have been conducted to investigate the relationships between TQM elements and organisational performance (Powel, 1995; Dow *et al.*, 1999; Rahman, 2001).

Australian study

Brown *et al.* (1995) reviewed articles presented at the Second National Conference on Quality Management held in Melbourne, Australia in February 1995. Based on these papers and syndicate discussions among executives and researchers, they categorised future research issues in TQM into nine areas. These are TQM and other managerial processes, the nature of practice of TQM, TQM and organisational culture, best practice, impact of information technology/information systems, ISO 9000 certification and TQM, impact of TQM on organisational performance, conceptual framework/model development, and cooperative research among industry, academia, and government. This study is limited in the sense that the review is based on a few papers presented at the Melbourne conference. We believe that this article contains the first comprehensive review of studies on TQM published by Australian researchers or in the context of Australian companies.

Research Methodology

Set of Journals

A literature search has been conducted to identify articles published in refereed journals. Since TQM based management philosophy was still new to most researchers and practitioners in Australia until the middle of the 1980s, we assumed that substantial research in this field has not been done and published before 1985. Therefore, in this study we provide a review of TQM articles published between 1985 and 1999.

Research conducted before 1985 focused mainly on the aspects of quality control. For example, the paper by Wells (1982) focussed on quality circles in Australia. There are a number of books published by the Australian researchers in this field. For example, the books by Gilmour and Hunt (1995) and Oakland and Sohal (1996) incorporated many Australian cases along with the descriptions of the principles of TQM. Dawson and Palmer's (1995) book is an excellent collection of cases on Australian companies, whereas Sprouster's (1987) book described the experience with TQC in large Australian companies such as BHP, Ford, Kodak and Nashua. However, books have not been considered for review. Although the *Momentum: The Quality Magazine (Australia)* (previously known as *Quality Magazine*) publishes valuable case studies and articles concerning quality practices in Australian organisations, it however, was also not considered for this review, since it is a non-referred journal. Only papers published in refereed journals were considered for this review.

The identification of a set of relevant journals was a critical issue. While the main objective of the study was to identify as many TQM articles published in the context of Australian organisations as possible, it was not possible to search each and every journal. We, therefore, took the following steps. First, we reviewed the 44 referred journals surveyed by Ahire *et al.* (1995). From this set we excluded the journals which has operations research/management science and engineering focus and chosen the journals whose primary focus is in field of quality and operations management and human resources management. Hence, we identified the following journals: *Academy of Management Journal, Academy of Management Review, Administrative Science Quarterly, Business Horizon, California Management Review, Harvard Business Review, Industrial Management, International Journal of Operations & Production Management, International Journal of Purchasing and Materials Management, International Journal of Quality & Reliability Management, International Journal of Production Research, International Journal of Production Economics, International Journal of Technology Management, Journal of Operations Management, Journal of Quality Technology, Long Range Planning*, *Production & Operations Management, Sloan Management Review*, and *Technometrics*.

Second, we reviewed two reputable journals published in Australia serving as outlets for management research. These are *Australian Journal of Management* and *Australian Journal of Public Administration.*

Thirdly, we surveyed journals which has Asia-Pacific/Australasia focus. These are; *Asia Pacific HRM, Asia Pacific Journal of Human Resources, Asia Pacific Journal of Marketing & Logistics,* and *Asia-Pacific Journal of Quality Management.*

Lastly, we reviewed journals which has a primary focus in quality management. These journals were not included in the set of journals surveyed by Ahire *et al.* (1995). These journals are; *Benchmarking for Quality Management and Technology, Journal of Quality and Participation, Managing Service Quality, Quality Progress, The TQM Magazine* and *Total Quality Management.*

Overall, we identified 31 journals for this study. While we made every effort to identify TQM articles published in the context of Australian organisations by reviewing all articles appearing in these journals during the review period, some may have been overlooked. Any omissions of relevant research from these journals are unintentional.

Classification Scheme: Benchmarking against the ABE Framework

We applied the Australian Business Excellence (ABE) Framework (Australian Quality Council, 2000) to classify articles. In a recent study among the top 500 companies in Australia conducted jointly by Deloitte Touche Tohmatsu and Australian Quality Council, it was revealed that about 40% of the companies use ABE Framework as their formal approach for business improvement (Australian Quality Council, 2000). Another recent study demonstrated that correct application of the ABE Framework lead to improved organisational performance (Hausner, 1998). This study chartered the average annual improvement in key performance indicators (KPI) against the Australian Quality Awards for Business Excellence evaluation score. The result showed an increase in the Awards evaluation score was strongly associated with an improvement in an organisation's KPIs. By adopting the ABE Framework, Australian-based Award winners and finalists have achieved 20% productivity increase in one year, 100% profit increase over two years, 66% reduction in lost time injuries in one year and 80% reduction in product defect rates over two years (Australian Quality Council, 2000).

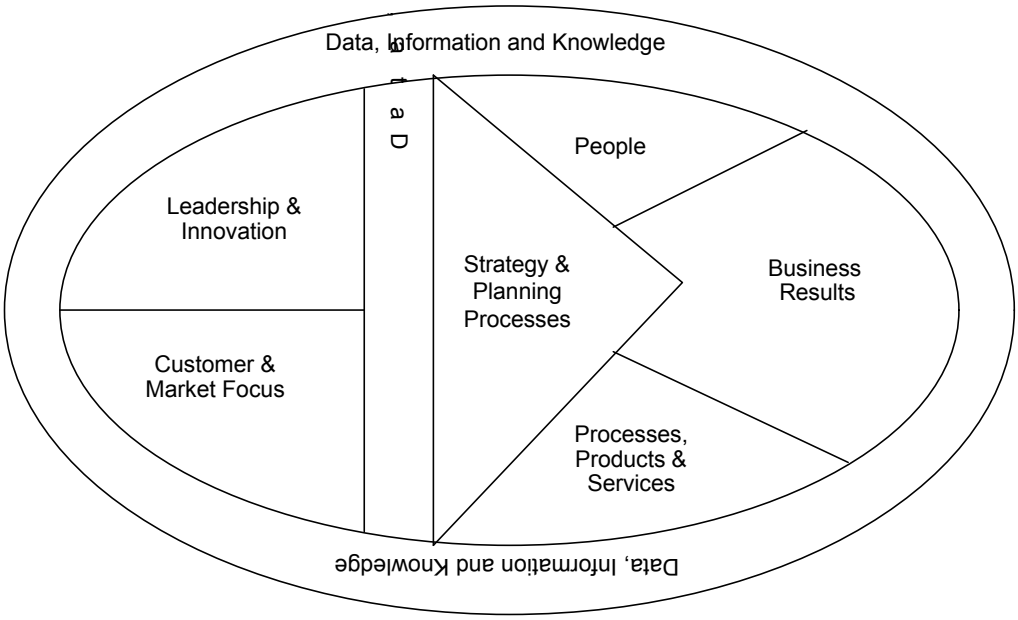

Figure 1: Australian Business Excellence Framework

The ABE Framework is structured with seven criteria, which are represented as a causal model (Figure 1). These criteria are leadership and innovation strategy and planning processes, data, information and knowledge people, customer and market focus, processes, products and services, and business results. Under each criterion exits more than one sub-criteria, which describe aspects of the criterion in more detail. The sub-criteria permitted us to develop an objective categorisation of the TQM literature. In this study we investigate leadership and people focus in TQM research in Australia.

We employed a three-step screening process to identify relevant articles and classify them appropriately. These steps are:

1. Is the article in question a TQM article in the context of Australian organisation?
2. If so, what ABE Framework criterion (criteria) is addressed?
3. If the article has Leadership and HR focus, what sub-criterion (sub-criteria) is addressed?

The first step required a central focus of the article. The second step was to classify according to the ABE Framework criterion being addressed. While this was straightforward for most articles, the decision was more of a challenge for some articles. The third step involved determination of focus of the Leadership and HR related articles. The classification scheme is shown in Figure 2.

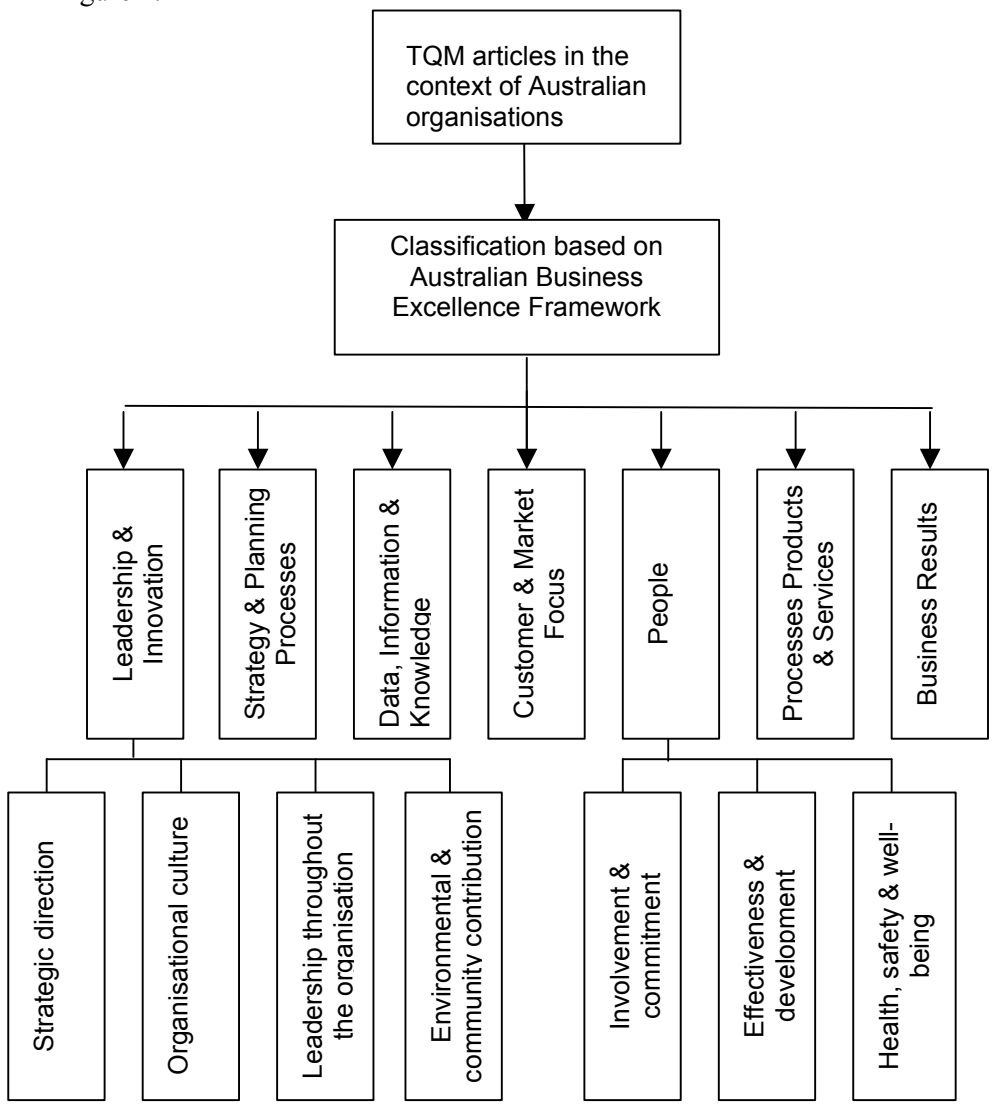

Figure 2: Framework for the review

Trends in the TQM research

A total of 90 articles were identified which were published between 1985 and 1999. Over 81% of these articles appeared in only three journals which include A*sia-pacific Journal of Quality Management, International Journal of Quality and Reliability management*, and *Total Quality Management* (Table I). A significantly higher number of research papers were published during the middle to late 1990s and about 28% of the articles were published in the year 1995 alone (Figure 3).

Journal	No. of articles	% of articles
Asia Pacific Journal of Quality Management*	28	31
Intl. Journal of Quality and Reliability Management	27	30
Total Quality Management	18	20
Intl. Journal of Technology Management	4	4
The TQM Magazine	4	4
Australian Journal of Management	3	3
Other	6	7
Total	90	100

Table I: Journals and frequency of publication (***** This journal discontinued being published since 1997).

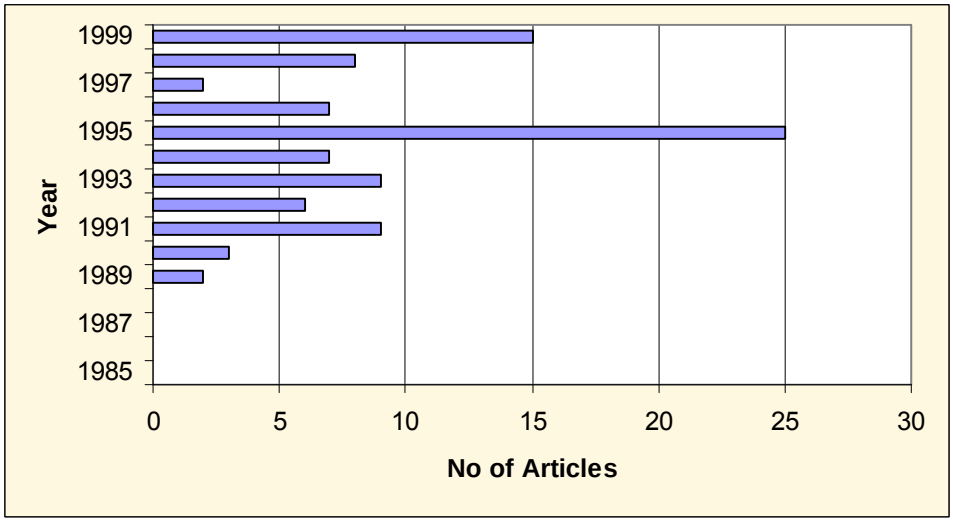

Figure 3: Annual frequency of TQM articles published in the journal set.

We classified the reviewed articles into three groups: early published (1985 –1989), mid-period published (1990 – 1994) and recent published (1995 – 1999) papers (Table II). Australian research on TQM began publishing in the early 1980s. However, research conducted before 1985 focused mainly on the aspects of quality control (e.g., Wells, 1982). It is evident from Table II that only two of the 90 reviewed papers published between 1985 and 1989, fell into the 'early published' category. Harber and Samson (1989) develop an integrated framework of the Japanese management practices and Sohal *et al.* (1989) describes the application of quality control systems in an Asian division of a multinational company.

Category	Year	Total	%
Early published	1985 - 89	2	2
Mid-period published	1990 - 94	34	38
Recent published	1995 - 99	54	60

-period' and about 60% of the papers were published in the recent period. Twice as many empirical studies were published during the 'recent' years compared to the 'mid-period'. There is also a methodological difference amongst the empirical studies published in 'mid-period' category and 'recent published' category. Most of the empirical studies belonging to the mid-period category collected data and information using questionnaires and summarised the findings. The studies by Sohal *et. al*. (1992), Fisher (1993), Frost and Jones (1994) are some of the examples of such studies. Most of the empirical studies belonging to the 'recent published' category concentrated on the development of survey instruments, and checked for reliability and validity of the instruments through rigorous statistical techniques. Some of the examples are Dow *et al*. (1999), and Samson and Terziovski (1999). A thorough reliability and validity analysis on measurement instruments in empirical research is essential for several reasons. First, it provides confidence that the empirical findings accurately reflect the proposed constructs. Second, empirically validated scales can be used directly in other studies in the field for different populations and for longitudinal studies (Flynn *et. al*., 1994).

Review and classification of studies with leadership and HR focus

Out of 90 articles 5 focused on the development of conceptual and theoretical frameworks and were not focused on any particular industry. For example Rahman (1995) developed a conceptual model for variation reduction at workplace. King (1995) reviewed the economics of customer retention and analysed the effectiveness of market-led and quality management-led programs. We have not considered these articles for further study.

We considered 85 articles for further analysis using the classification scheme shown in Figure 2. However, we had difficulties identifying primary focus of 18 articles. For example, Nettle (1995) highlighted the evolution of the quality movement in Australia and Mackowski (1994) addressed the issue of misinterpretation of TQM. Some authors have addressed all seven criteria of the ABE Framework. For example Brown (1992, 1993), Van der Wiele and Brown (1999), Saunders and Walker (1991). These studies are shown in Table III. Since it was not possible to categorise these articles into any criterion of the ABE Framework, we therefore did not consider them for further analysis. Hence we classified 67 articles using seven criteria of the ABE Framework and identified the 'primary' focus of each article. Each article has a primary focus on one or more aspects of TQM defined by the ABE Framework.

Authors
Barad, M and Kayis, B [1995]
Brown A. [1992]
Brown A. [1993]
Brown A. and Van der Wiele T [1996a]
Brown A. and Van der Wiele T[1996b]
Brown A. and Van der Wiele T[1995]
Davis D. [1995]
Dawson, P [1995]
Fisher T.J. and Davis D. [1992]
Husband S and Mandal P [1999]
King G. [1995]
Mackowski S. J. [1994]
Navaratnam K.K. [1993]
Nettle D. [1995]
Orsini J.L. [1995]
Rahman S. [1995]
Sag A.G., Jhamb H.K. and Murthy D.N.P. [1995]
Saunders I. and Walker M. [1991]
Saunders I.W. and Preston A.P [1994]
Sosa O and Barry G [1995]
Van der Wiele T and Brown A [1999]
Walsh P. [1995]
Wright [1995]

Table III: Articles not considered for further analysis

Industry Focus

Out of the remaining 67 studies, 27 articles have a primary focus on leadership and HR. About 67% of the leadership and HR related articles focused on manufacturing companies, which include automotive, chemical, electronics, telecommunication, machinery and metal industries. The focus of these studies range from investigating quality based vision for the Australian manufacturing companies (Samson and Terziovski, 1993), comparing TQM practices with HRM practices, surveying the practices of TQM in Australian companies (Chapman *et al.*, 1991; Sohal*, et al.,* 1992), application of TQM tools and techniques (Ferme, 1995), and assessment of chief executives perception of TQM (Fisher, 1993). These studies include both case studies (Sohal *et al.,* 1989; De Cieri *et al.*, 1991) and large scale empirical studies (Dow *et al.*, 1999; Samson and Terziovski, 1999).

About 22% of the articles focused on service organisations which include banking and finance (Dawson and Patrickson, 1991), health care (McCoy, 1995; Preston *et al.*, 1995), retailing (Sohal and Lu, 1995), food (Williams, 1993) and engineering consultancy (Samson and Parker, 1994). About 11% of the articles studied both manufacturing and service organisations. These studies are mainly empirical studies (Abraham, *et al.* 1999; Hames, 1991; Wilkinson, 1995).

In the following sections we review and classify articles into sub-criteria of leadership and HR (people). The classification framework presented here defines 21 cells using two categorical dimensions: industry type (three categories) and elements of Leadership and HR (seven subcriteria) (Table IV).

Criterion		Industry type		
		Manufacturing	**Service**	**Both types**
Leadership and Innovation	*Strategic Direction*	Chapman R.L., Clarke P. and Sloan T. [1991]; Davies D. and Fisher T.J. [1994]; De Cieri, H, Samson, D, Sohal, A. S [1991]; Mandal, P., Shah, K., Love, P. E. D. and Li, H. [1999]; Palmer G. and Saunders I.W. [1992]; Preston A.P. and Saunders I.W. [1994]; Samson D. and Terziovski M. [1993]; Sohal, A.S. and Lu, E. [1996].	Dawson, P and Patrickson, M [1991]; Gray, J. H., Sohal A. S. and Sorros J. C. [1996]; Preston, A. P., Saunders, I. W., O'Sullivan, D., Garrigan, E. and Rice, J. [1995]; Perry, M. and Sohal, A.S. [1999]; Sohal A. S. and Lu E. [1995].	Wilkinson, M. [1995].
	Organisational Culture	Bardoel, E. A. and Sohal, A. S. [1999]; Chapman R.L., Clarke P. and Sloan T. [1991]; Davies D. and Fisher T. J. [1994]; Harber D., Burgees K. and Barclay D. [1993a]; Harber D., Burgees K. and Barclay D. [1993b]; Palmer G. and Saunders I.W. [1992]; Sohal, A. S. and Lu, E. [1996]; Sohal, A. S. and Lu, E. [1998].	Gray, J. H., Sohal A. S. and Sorros J. C. [1996].	Abraham M., Crowford J. and Fisher T. [1999]; Hames R.D. [1991].
	Leadership throughout the Organisation	Chapman R. L., Clarke P. and Sloan T. [1991]; De Cieri, H., Samson, D. and Sohal, A. S [1991]; Harber D., Marriot F. and Idrus N. [1991a].	Preston, A. P., Saunders, I. W., O'Sullivan, D., Garrigan, E. and Rice, J. [1995].	
	Environmental & Community Contribution			
Human Resource	*Involvement & Commitment*	Barnett N. S. [1991]. Chapman R. L., Clarke P. and Sloan T. [1991]; Cooney R. [1995]; De Cieri, H., Samson, D., Sohal, A. S. [1991]; Everett, R. J. and Sohal, A. S. [1991]; Harber D., Burgees K. and Barclay D. [1993a]; Harber D., Burgees K. and Barclay D. [1993b]; Harber D., Marriot F. and Idrus N. [1991a]; Harber D., Marriot F. and Idrus N. [1991b]; Palmer G. and Saunders I. W. [1992]; Samson D. and Terziovski M. [1993]; Sohal, A.S. and Lu, E. [1996].	Dawson, P. and Patrickson, M. [1991]. Perry, M. and Sohal, A. S. [1999].	
	Effectiveness & Development	Barnett N.S. [1991]; Chapman R.L., Clarke P. and Sloan T. [1991]; Cooney R. [1995]; Davies D. and Fisher T. J. [1994]; Dawson, P. [1994]; De Cieri, H., Samson, D., Sohal, A. S. [1991]; Everett, R. J. and Sohal, A. S. [1991]; Harber D., Marriot F. and Idrus N. [1991a]; Mandal, P., Shah, K., Love, P. E. D. and Li, H. [1999]; Samson D. and Terziovski M. [1993]; Sohal, A.S. and Lu, E. [1998].	Gray, J. H., Sohal A. S. and Sorros J. C. [1996].	
	Health, Safety & Well-being	Harber D., Marriot F. and Idrus N. [1991a]; Harber D., Marriot F. and Idrus N. [1991b].		

Table 4: The classification of the studies.

Leadership and innovation

Most quality experts agree that strong leadership from senior management is absolutely necessary to develop and sustain a quality-based culture in an organization. It is the first of the seven criteria of the ABE framework, signifying the critical importance of leadership to business success. Two of Deming's 14 points (points 1 and 7) are also devoted to this issue. According to Australian Quality Council (2000) the leadership category explores how leadership uses the principles underpinning the ABE Framework and also addresses how effective leadership creates an innovative climate. According to the ABE Framework this category is made up of four sub-criteria of strategic direction, organisational culture, leadership throughout the organisation, and environmental and community contribution. Out of the 27 reviewed articles about 81% have a primary focus on leadership.

Strategic Direction

This sub-category of leadership and innovation describes how organisation establishes and communicates its purpose, vision and goals, determines core business strategies and creates alignment to its purpose (Australian Quality Council, 2000). A number of studies have focused on the strategic direction for both manufacturing and service industries. For example, Chapman *et al*. (1991) emphasised the importance of leadership role of top management at Dow-Corning Pty Ltd. The authors concluded that senior executives must be involved in setting strategic directions, provide a visible vision and goals, and support behaviour which are consistent with its values and which encourage achievement of organisational objectives. Samson and Terziovski (1993) pointed out that senior management has a major role to play in implementing the TQM program, by being totally committed in leading the culture change process during every stage of implementation process. Some of the other authors who addressed this issue are Preston *et al.* (1995), Sohal and Lu (1995) and De Cieri *et al.* (1991).

Organisational Culture

This sub-category describes how an organisation develops a culture and supports behaviours which are consistent with its values, and encourage achievement of organisational objectives. Most of the studies which addressed this issue focused on manufacturing companies. For example, Harber *et al.* (1993a) studied a large business enterprise within the electronics industry. They found TQM to be an excellent program to bring about massive change in both social and technological components of a workplace. They concluded that understanding organisational culture and its relevance to TQM will greatly assist managers to operationalise programs such as TQM that seek to harness the knowledge and skills of employees in order to maintain a competitive edge. Palmer and Saunders (1992) discussed the importance of leadership in the implementation of change in the context of a hospital. The authors compared the understanding of conceptual leadership models adopted by executive of a large public hospital and externally derived models of leadership. They concluded that there are few substantial differences between the perceptions of leadership in a hospital setting and the broad norms found in other industries. Chapman *et al.* (1991) studied a continuous-process manufacturing company and emphasised the importance of organisational culture for successful TQM implementation. Among others who addressed this issue are Bardoel and Sohal (1999), Gary *et al*. (1996) and Harber *et al.* (1993b).

Leadership Throughout the Organisation

It is generally argued that leadership throughout an organization is crucial for innovation to occur. All individuals must be empowered to make decisions, execute their programs and use their creative ability. One of the key leadership roles needed by top management to improve company's performance was delineated as teacher (Senge, 1991). As a teacher top management must orient employees at all level towards company's strategies and vision. This category emphasises how leadership concepts and management system allows and encourages decisions to be made at appropriate levels. Some of the studies which emphasised this category of leadership are De Cieri *et al.* (1991),Harber *et al*. (1991a) and Preston *et al*. (1995).

Environmental and community contribution
The sub-category, environmental and community contribution, describes how organisations contribute to community and support a clean, safe, fair and prosperous society. In our review we did not find any study which directly addressed this sub-category of leadership and innovation.

Human Resource
The people resource is the only one that competitors cannot copy. It consists of those activities designed to provide for and coordinate the people of an organization (Byars and Rue, 1991). According to some quality experts it is also the only resource that can senergise – that is, produce output whose value is higher than the sum of its parts. When asked about the 'secret' behind the superior products, one manager from Toyota's Kentucky plant, a three time winner of the Power Gold Plant Quality Award, replied "We've got nothing, technology-wise, that anyone else can't have. There's no secret Toyota quality machine out there. The quality machine is the workforce …" (Bergstorm, 1995). The people management consists of activities which include recruiting, selecting, training and developing, counseling, motivating, and rewarding employees and handling other matters of employee well-being. This study shows that about 74% of the reviewed articles (27) focused on the people aspects of TQM (Table IV). According to Australian Quality Council (2000) this criterion of ABE framework explores the way in which all people are encouraged and enabled to make a personally satisfying contribution to the achievement of the organisation's objectives. Authors of these studies discussed people management from several perspectives which can be categorised into involvement and commitment, effectiveness and development, and health, safety and well-being.

Involvement and Commitment
This sub-category describes how all people are encouraged and enabled to contribute to achieving organisational goals and continually improving the organisation. Employee involvement approaches can range from simple sharing of information to self-directed activities such as setting goals, solving problems and making decisions. Five of Deming's 14 points (points 6, 7, 8, 10 and 13) relate directly to the notion of involvement and empowerment (Smith *et al.*, 1993). Everett and Sohal (1991) focused on the social and psychological aspects of *andon* and identified factors responsible for over and under utilisation of *andon*. They concluded that since *andon* empowers shop floor employees, it improves their morale. Palmer and Saunders (1992) compared and contrasted people aspects within the TQM environment and human resource management. Harber *et al.* (1993a) studied the impact of implementing TQM as a cultural intervention in an electronics company. They found that TQM had a significant positive effect on the employees' involvement and commitment to the organisation. In another study, Harber *et al.* (1991b) examined the relationship between employee participation, employee satisfaction and found that the relationship is bidirectional in contrast to popular belief of unidirectional relationship. De Cieri *et al.* (1991) identified employee involvement and commitment as one of the critical success factors for TQM.

Effectiveness and Development
This sub-category emphasises people development through training and education. Quality gurus have actively promoted quality training and education. Two of Deming's 14 points (points 6, 13) are devoted to these issues. Training generally includes quality awareness, teamwork, problem solving, using data for making decisions, process analysis, process simplification, waste reduction, cycle time reduction and other issues that effect employee effectiveness and efficiency. Many studies have addressed this sub-category. While studying a large manufacturing organisation De Cieri *et al.* (1991) found that the most effective TQM education and training involved the integration of TQM principles and statistical skills with their 'hands-on' application to real world problems faced by employees. In an empirical study

Harber *et al.* (1991a) found that training satisfaction increases with TQM. Among others who addressed this sub-criteria are Barnett (1991), Cooney (1995), Dawson (1994).

Health, Safety and Well-being
This sub-category of the ABE Framework describes how organisations provide work environments conducive to maximising potential of their employees and which recognises well-being as a critical component of organisational success. As employees are key stakeholders of any organization, their health, safety and well-being are important factors in the work environment. Only two studies addressed the issue of employee well-being and satisfaction (Harber, *et al.*, 1991a; Harber, *et al.*, 1991b).

Conclusion and future research

We surveyed 31 reputable journals over a period between 1985 and 1999 and identified 90 articles which addressed various aspects of total quality management in the context of Australian organizations. Over 81% of these articles appeared in only three journals which include *Asia-Pacific Journal of Quality Management, International Journal of Quality and Reliability Management* and *Total Quality Management.* It was not possible to identify the primary focus of 23 articles. These articles are either conceptual or have addressed every aspect of the ABE Framework. Hence we identified the primary focus of 67 articles and classified them using seven criteria of the ABE Framework.

About 40% of the reviewed articles have a primary focus on leadership and HR of which about 33% have a primary focus on leadership and innovation and 30% have a primary focus on people aspect. The review shows that within the HR aspect of TQM so far a considerable focus has been on strategic direction, organizational culture, involvement and commitment, and effectiveness and development subcriteria. We suggest the specific areas for future research.

- *Environmental and community contribution*: Environmental issues are increasingly becoming critical to global business and hence, environmental standards such as ISO 14000 standards are becoming more relevant than ever. Similar to ISO 9000 standards, the ISO 14000 standards has been introduced to provide organisations with a structure for an environmental management system that will ensure the attainment of the environmental objectives of organisations. As identified from the review, there has been no research conducted that has addressed top managements' role in environmental issues and community contribution. Studies have identified public responsibility as an important aspect of the leadership system of any organisation. In 70s and 80s many believed that a significantly high investment was associated with transition from brown (polluting) strategies to green strategies. In 1990s, however, this perception has changed. The strategy of design-for-disassembly (DFD) (or manufacturing for re-use) made manufacturing more environmentally friendly and saved costs (Hayes and Pisano, 1994).

- *Health, safety and well-being:* Only two studies addressed the issue of employee well-being and satisfaction. More research has to be done in this area, since this is one way in which employers can demonstrate to employees that they are their 'most important resource'.

- *Leadership through the organization:* Only four studies focused on this sub-criteria. It is argued that leadership throughout an organization is crucial for innovation to occur. The competitive strategies that typically dominate organizations include cost reduction, quality enhancement, and innovation

(Schuler and Jackson, 1987). A strategy such as innovation which emphasizes creativity and flexibility fits the current and future unpredictable, and turbulent business environment. Employees must be able to demonstrate a variety of skills, and prepare to seek risk and embrace change.

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