Human resources and total quality management: case studies in Brazilian companies

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Abstract

This paper presents an exploratory research carried out in four manufacturing companies (large to medium size) located in the central region of São Paulo State, Brazil. The research was conducted aiming at characterising the companies in regard to quality and human resource management practices. The results show that human resource management may co-operate with the success of total quality programmes, emphasising the competitive advantages which can be created from this partnership, namely organisational learning, organisational culture management and team-based management.

Introduction

The 1990s have demanded the transition into new policies to encourage industrial competitiveness in Brazil. Following the global tendency, investments in quality have shown to be a way for reducing costs and cycle times as well as improving sales and profits. This is proved by the exponential growth in ISO 9000 certifications (Gomes and Osório, 1995).

Total quality management is a general philosophy of management that attempts to maximise the competitiveness of an organisation through the continual improvement of the quality of its products, services, people, processes and environments. Migrating into policies for encouraging quality-centred competitiveness means allying with principles and programmes for focusing on the customers, for continuous improvement, for human resources empowerment and quality management structural elements.

Employee empowerment is essential to improve quality. Due to increased awareness of responsibility and equity among subordinates, empowerment also leads to increased employee participation (Everett and Sohal, 1991). However, empowerment alone is not adequate to ensure employees' full participation and commitment. Organisations must develop formal systems to encourage, track and reward employee involvement. Otherwise, the extent and quality of participation declines, leading to a dissatisfied work force (Chevalier, 1991). The use of cross-functional quality improvement teams and quality circles along with appropriate evaluation and reward systems for quality improvement projects have been shown to improve quality significantly (Kumar and Gupta, 1991; Scully, 1996).

Still, employee empowerment and involvement is not effective unless employees have received formal, systematic training in quality management. Only when employees are trained in the quality concepts and tools can they understand quality related issues. Also, participation by various levels of employees and managers in training sessions, due to the breakdown of barriers between ranks, helps subsequent employee participation.

On the other hand, lack of interest in management, poor training, inconsistent paying system, lack of attention on motivation and many other features are often symptoms of the

little emphasis given to policies and programmes for changing the organisational culture to the adoption of new ways of management and of organisational learning (Scully, 1996).

It has been shown that the following strategic actions in human resource management co-operate with the achievement of total quality (Caudron, 1993):

- inclusion of human resources in business strategic management, demanding a deep understanding of business from staff and decentralisation of decisions about traditional activities. The establishment of a strategic posture in all the employees in the company is regarded as one of the main concerns in organisational learning (Senge 1990);
- creating fruitful environment for changes and for organisational learning as a requirement for technological and organisational innovation. Instead of training for repetitive tasks, human resource management must help in creating a permanent organisational renewal atmosphere;
- organisational culture management, changing human resource management into one more agent in the organisational transformation process, since before changing administrative processes and working methods, it is necessary to change organisation values which determine people's behaviour (Fleury, 1995);
- constitution and strengthening of team working, aiming at the creation of a global vision of business in all organisational business processes (Katzenbach, 1993).

The organisational non-alliance with these elements can explain the unfruitful implementation of quality programmes in Brazil and abroad (Tolovi, 1994). The development of partnership between the human resource area and all the other functional areas and enrichment of the traditional human resource management activities – recruiting, selection, payment, description and analysis of jobs, training, management improvement, succession planning – may co-operate for reducing the lack of success. This renewal of human resource management effectively contributes to formulation and implementation of quality centred competitive strategies.

This article presents the findings of a study aiming at evaluating the process of implementing quality programmes and policies in

four manufacturing plants in the centre of São Paulo State, an example to be studied by other Brazilian organisations in search of competitiveness in global terms. It may be anticipated that the conclusions of this study do not allow unconditional extension of such partnerships to other groups of companies, either national or multinational companies in Brazil or abroad.

Researched companies and methodology

The companies considered in this research can be generically classified as described in Table I. The companies were chosen based on the following criteria:

- metal-mechanical manufacturing plant;
- leading companies in their markets and which are facing high-level competition;
- ISO 9000 awarded companies;
- geographical location.

The identity of these companies can be described by the following traits of nationality and of capital property;

- two of them constitute the Brazilian division of American companies (companies A and B);
- one of them is the Brazilian division of a Swedish company (company C), which is the Brazilian division originated by the acquisition of a Brazilian company in 1994;
- the other one is the headquarters of an originally Brazilian company (company D), which has business units in the headquarters as well as other units in Brazil and abroad. This particular company has been awarded the QS 9000 certificate.

To carry out the research in the companies, staff belonging to high and medium management levels were interviewed, noticing that these people had both historical and strategic visions of the following areas: planning or strategic management, human resource management, quality management, product and

Table I Characterisation of the researched companies

Company	Main products	Employees/size	Annual incomes 1996 (1,000 US$)
A	Capital goods	2,600/large	more than 150
B	Capital goods	290/medium	between 25 and 50
C	Consumer durable	2,400/large	more than 150
D	Vehicle components	2,140/medium	more than 150

process engineering, and production planning and control or logistics. Simultaneously with the interviews, technical visits were carried out to each area aiming at identifying their systems and dynamics. The interviews were performed based on specific questions, but there was room for open discussions so that the interviewees could share complementary information about their areas.

To characterise the quality and human resource areas, the interviewees were solicited to rate the intensity of application and the importance to the consecution of the business strategy of some concepts and methodologies. Tables II and III present the rates used and their meanings.

The concepts and methodologies considered were:
(1) Quality:
- suppliers development in quality;
- continuous improvement programme (*Kaisen*);
- statistical process control;
- failure mode and effect analysis (FMEA);
- preventive and predictive maintenance and total productive maintenance;
- design and analysis of experiments (Taguchi method).
(2) Human Resource:

- participation of human resource in the business strategic management;
- constitution of human resource management as internal consultation;
- continuing education programmes;
- support in the consolidation of teams;
- administrative transparency;
- entrepreneurs' formation;
- performance evaluation for individuals and teams;
- cultural change;
- self-control, empowerment;
- extensive communication programme;
- monitoring organisational climate.

Tables IV-VII present the responses of the interviewees as regarding intensity of application (as indicated in Table II) and importance to the consecution of business strategy of the concepts and techniques, as described above, of respectively the quality and human resource areas.

The interviewees were also solicited to rate the participation of the HR area in the implementation of the programmes somehow related to quality improvements. The intensity of participation was rated as indicated in Table VIII.

The programmes considered are as follows:
- total quality;
- concurrent engineering;
- re-engineering;
- information technology;
- team-work formation.

Table IX presents the responses of the interviewees related to the intensity of participation of the HR area in the implementation of the programmes considered above.

Discussion of results

First, it must be noted that to reach satisfactory results in managing their businesses, the companies had gone through organisational

Table II Intensity of application of concepts and methodologies

Intensity of application	Meaning
0	The concept or technique is not known at all
1	Nothing has been done as it lacks interest
2	Nothing has been done because of its high cost of implementation
3	After preliminary studies, the implementation is in its way
4	After some trials, the programme has gone to a halt
5	The concept/technique is partially implemented
6	The concept/technique is fully implemented, further improvements are encouraged

Table III Rate of importance to the consecution of business strategy

Importance	Meaning
A	Of great value
B	It has led to good results
C	Minimum collaboration
D	There was no collaboration at all
E	It has led to internal problems

Table IV Characterisation of quality management practices in the researched companies (a)

	Suppliers development in		Continuous improvement	
Company	Quality	SPC	Kaizen	FMEA
A	6A	6A	6A	6A
B	5A	3B	3A	3A
C	6A	5A	6A	6A
D	6B	6B	6A	5B

Table V Characterisation of quality management practices in the researched companies (b)

Company	QFD	DOE/Taguchi	Preventive maintenance	Predictive maintenance	MPT
A	6A	6A	6A	6A	6A
B	3A	3B	6A	6A	5A
C	3B	5A	5A	3B	3B
D	6B	5B	5A	5A	5A

Table VI Characterisation of human resource management practices in the researched companies (a)

Company	Participation of RH in strategic management	HR as internal consultation	Continuing education programmes	Support in the consolidation of teams	Administrative transparency
A	5A	3B	4C	6A	6A
B	6A	6A	6A	6A	6A
C	3C	6B	6A	5A	5B
D	6A	6A	6A	6A	6A

Table VII Characterisation of human resource management practices in the researched companies (b)

Company	Entrepreneurs' formation	Performance evaluation	Cultural change	Self-control empowerment	Monitoring climate	Communication programme
A	5A	6A	5A	6A	6A	6A
B	5A	6A	5A	6A	6A	6A
C	4A	4C	5B	4B	6A	5B
D	6A	4B	5B	5B	5B	6A

Table VIII Intensity of participation of human resources in implementing programmes in other areas

Intensity	Meaning
0	HR does not get involved in implementing programmes of other areas
1	HR is kept informed of programmes being developed in other areas
2	HR is consulted to evaluate the viability of implementing programmes in other areas, but does not intervene
3	HR participates actively in other areas' programmes, giving some advice on training, job design, compensation and human resource acquisition

changes which lead to the success of the strategies adopted by the companies. As a result, there has been a reduction of two or three hierarchical levels in the companies during the last five years. The levels which were eliminated were occupied by managers with intermediate levels such as supervision. Another important change was the transformation of functional departments (human resources, quality, planning and control of production) into business supporting areas, and the transformation of the process engineering (either involving or not product engineering) into key-function business units.

As to the answers presented in Tables IV and V, they indicate that the researched companies, as a whole, consider the application of methods for planning, controlling and improvement of quality to be of great relevance or at least they recognise that these practices produce good results to the achievement of

Table IX Participation of the HR area in the implementation of programmes in other areas in researched companies

Company	Total quality	Concurrent engineering	Re-engineering	Team formation	Information technology
A	3	1	2	3	3
B	3	3	3	3	3
C	2	na	3	2	2
D	3	3	3	3	3

entrepreneurial strategies. That is to say, their entrepreneurial strategies, from which derive their manufacturing strategies, definitely regard quality as a competitive factor.

Another aspect deserving to be highlighted is that, among the methodologies and techniques considered in this study, some of them are totally implemented (all in company A), partially implemented or about to be implemented (company B, applies for four of the methodologies and company C for two of them). In other words, the companies considered in this study may be characterised as having quality programmes with a certain degree of maturity and that have worked, otherwise the application of such methodologies would have been abandoned and they would have been considered to be unimportant for the achievement of the strategic goals.

As to the human resource management practice, shown in Tables VI and VII, it is noticeable that the companies consider of great importance elements such as support to the formation of teams, formation of entrepreneurs, monitoring organisational climate, intensive orientation and communication, self-control of employees, the role of human resource management in the culture changing process, the participation of this area as internal consultation and a conveyor of administrative transparency. The answers suggest that the practice of such concepts is totally or partially implemented, and in some cases about to be implemented.

Table IX shows the involvement of human resource management in activities and programmes of other areas. The partnership between this area and other functional areas is evident from the information in Table IX, where it is possible to notice that this area, as a whole, was consulted as to the applicability of programmes from other areas, and in many cases, it participated actively in the programmes of other areas. The active participation of human resource management in the researched companies was remarkable, mainly when it comes to achievement of programmes in other areas, such as total quality, ISO 9000 certification and formation of teams. In companies A, B and D, human resource management participates in programmes of simultaneous engineering, constitution of manufacturing cells, re-engineering, intensive use of information technology and strategic management. Curiously, in company C, the human resource manager used to be

the manager in one of the business units. On the other hand, in company A, a project and process engineer became responsible for the human resource area.

The effective participation of the people who are responsible in these areas into business management allowed them to be aware of the strategic goals. Owing to the fact that the activities of human resources and quality were partially decentralised, the managers from business units started to be supported by employees belonging to these areas. Besides helping business units in the execution of activities related with human resource management, the employees helped achieve the inclusion of human resource strategic principles in business management.

On turning towards business units strategy, human resource management must seek team-based organisational structure eliminating barriers in departments and specific groups. That is what has happened in the researched companies. In company D, the traditional engineering areas (design, processing and production) were changed into marketing and technology management and business units. There was no connection between experts in a certain area of knowledge and the functional area in the company. Essential competence principle (Hamel and Prahalad, 1995) was in force in all the companies. People got together or were gathered together in order to carry out project or processes, or to work out improvements in all levels and areas of the organisation. Additionally, it can be said that all the companies constituted team-based organisations, noting that the teams operated in more than one hierarchical level in the researched companies.

Also, the managers interviewed in the companies, who carried out strategic management, highlighted the fact that intense and varied changes (market, technology, legislation and governmental policies) demand the inclusion of new values in the organisation through the introduction of organisational concepts, technologies and new forms of management. However, the assimilation of such new values depends greatly on the specific characteristics of each company. Consequently, constant monitoring of organisational culture and atmosphere was necessary. One of the managers in company A felt he was responsible for the cultural change within the organisation, saying how abstract and vital

this function was for the success of business in the company. Another manager, in company C, highlighted the concern to be following and assimilating management and technology tendencies, reinforcing the necessity of planning their eventual implementation in an appropriate way.

Final remarks

Although the conclusions of this study do not allow unconditional extension to other companies, practitioners worldwide must bear in mind the fundamental role of human resource management in the pursuit of long-term total quality management. Of the many aspects of human resource management considered here, the findings of this study indicate that some of them have clear implications on the success of quality programmes and therefore the human resource area must co-operate or take the lead in activities such as:
- training (technical knowledge and skills) and education (learning and problem solving methods);
- intensive communication programmes;
- organisational climate and cultural change monitoring;
- support in the consolidation of teams;
- support in self-control and empowerment programmes;
- administrative transparency.

Finally, independently of the manufacturing strategy adopted by a company, managers must be concerned with the overall consistency of the changing process, including different functions to deal with the various aspects of organisational learning, team formation and organisational culture management in a holistic way.

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Commentary

A fascinating and welcome study derived from one of the world's emergent economies.