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QUALITY AND WORK FORCE PRACTICES: THE MANAGERIAL PERFORMANCE IMPLICATION

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ABSTRACT

This paper examines the managerial performance impact of work force management practices appropriate for manufacturing environments when quality is highly emphasized. The hypotheses are tested using data from 483 individuals in 99 manufacturing plants in the United States. The results indicate that when the emphasis is high on quality, certain work force management practices seem to play an important role in managerial performance in manufacturing settings.

INTRODUCTION

The interest in the concept and construct of Quality in organizations has been the subject of many studies in the past decade as organizations have sought to create a competitive advantage in their industries and theorists have sought to understand the implications of Total Quality Management (TQM). With the corresponding interest in Quality programs has come a focused interest in documenting the correlational link between quality and performance. More specifically, a validation that the implementation of Quality programs in organizations will result in increased performance and ultimately increased organizational efficiency and effectiveness.

Quality has been cited as a competitive priority (Hayes and Wheelright, 1984), an issue of strategic importance (Garvin, 1987), and an 'order qualifier'- a means of survival (Hill, 1994). Over the years, managers have witnessed it in different forms - Statistical Quality Control (SQC), Total Quality Control (TQC), TQM, etc. Recognizing the importance of quality, researchers and practitioners have increasingly focused their attention on the effective management of quality (Anderson, Rungtusanatham, and Schroeder, 1994). Researchers have attempted to theorize and empirically test the theory underlying quality management. However, most literature on quality management continues to be anecdotal or comprised of descriptive case studies. The task is still far from complete.

Some studies have empirically investigated the impact of TQM on performance or customer satisfaction (for example, see, Waldman and Gopalakrishnan, 1996) or established the linkage between some elements of TQM (statistical control) and work force management practices, such as Delegating, Teamwork, etc. (for example, see, Flynn et al., 1995). Recently, Choi and Eboch highlighted that theorists have described TQM "as a collective, interlinked system of quality practices that is associated with organizational performance (GAO, 1991; Tornow and Wiley, 1991; Waldman,

1994; Madu et al., 1995)” (1998: 59). However, most of the recent research attempting to provide the empirical support for the linkage among these concepts has produced ambivalent, often conflicting, results. Specifically, none of the studies empirically investigated the interactive effect of work force management practices and quality emphasis on managerial performance. This study is an empirical investigation of the managerial performance impact of certain work force management practices when used by manufacturing managers in accomplishing the quality goal.

BACKGROUND AND RESEARCH HYPOTHESES

Work Force Management Practices Conducive to Quality Management

Choi and Eboch, 1998; Rategan, 1992; Baron and Kenny, 1986, have all sought to provide both conceptual argument and empirical evidence to support the linkage between TQM practices, organizational performance and customer satisfaction. At the same time others have reported conflicting results regarding a positive correlation among these variables (Burrows, 1992). A study done by McKinsey and company in the early nineties looking at TQM program effectiveness in organizations indicated that two-thirds of the institutions who had implemented these programs had in fact terminated them due to lack of expected organizational results (Economist, 1992). Choi and Eboch’s recognized “paradoxical dynamic” of the linkages calls for an alternative viewpoint and definition of managerial performance and its linkage to the implementation of quality programs in organizations. An alternative viewpoint while examining quality effects in organizations must look at the dynamic interplay among all three variables. That is – the synergetic effects of the quality emphasis in the organizations, the use of appropriate work force management practices and the managerial performance outcomes.

Flynn et al. (1995) established the direct effect of work force management practices, including employee empowerment and team problem-solving approaches, on work attitudes and statistical control/feedback. Since statistical control is an integral part of quality, these practices (Delegating and Team Building) should also facilitate the task of manufacturing managers responsible for implementing and managing quality at the plant level. Anderson et al. (1994), Dean and Bowen (1994), Ginnodo (1992) and Eisman (1992) all emphasized the importance of teamwork in implementing total quality.

Developing and maintaining collaborative relationship with people outside the organization i.e., vendors and customers is also fundamental to the philosophy of TQM (Anderson et al., 1994). Garvin (1987) suggests that a firm should meet and exceed customer needs if it intends to achieve quality. A manager demonstrating ‘Networking’ behavior would definitely meet with customers to discover their needs as well as to find out how to better satisfy them. Articulating a theory of quality management, Anderson et al. (1994) identified seven concepts underlying the Deming management method. These concepts are: Visionary leadership, Internal and external cooperation, Learning, Process management, Continuous improvement, Employee fulfillment, and Customer satisfaction. From their definition of these concepts, we derived the following work force management practices that would be more appropriate for implementing quality initiatives. Even though the visionary leadership is intended for the top management, leading by communicating (Informing), motivating (Inspiring), and through participative change (Consulting) would be appropriate for the manufacturing managers responsible for implementing and managing quality at the plant

level.

According to Spencer (1994), TQM practice broadens employees' roles by providing them with timely and accurate information. Communicating task-relevant information to employees, so they can carry out the assigned duties effectively, is an important element of the 'Informing' behavior (Yukl, 1994). To enable employees to conform to the product specifications, a key manufacturing task associated with quality (Juran, 1974; Feigenbaum, 1983; Ishikawa, 1986), a manufacturing manager must communicate the established product specifications, or changes thereof, from time to time. Communication is considered critical for quality management (Flynn, et al., 1995). Anderson et al. (1994) also argued that opening the feedback channels was important for quality management. For implementing quality, both intra- and inter-departmental communication are important (Deming, 1982). Employee participation is the fundamental principle behind TQM. A manager working in such an environment should, therefore, demonstrate 'Consulting' behavior, i.e., encourage participation in decision making, check with subordinates before making changes that affect them, and allow them to influence decisions. To achieve quality, Garvin (1987) suggests that customer needs and preferences be met with, and special/social events be held. Consultation with outsiders is one of the ways to learn about the needs and preferences of customers; and social events facilitate consultation (Yukl, 1994).

A higher emphasis on quality requires the use of procedures (for example, see, quality control charts) that ensure conformance to specifications, and help identify potential problems (Juran, 1974; Feigenbaum, 1983; Ishikawa, 1986). 'Planning' is useful for the development of procedures that can help avoid potential problems. 'Action planning,' a specific form of planning, is done to generate schedules and check points that make it easier to detect delays and problems before they occur (Yukl, 1994). Hence, planning, on the part of manufacturing managers, is particularly important when the emphasis is high on detecting potential problems as is necessary when quality is a high priority. Planning is also the first step in the famous Plan-Do-Check-Act (PDCA) cycle (Shewhart, 1931) that has the dual purpose of preventing defects from occurring and continuous improvement - two essential principles of quality management. Mentoring, that is to offer advice on how to advance career; encourage to attend training programs; help employees learn or improve job skills, is important in developing skills in statistical process control - an integral part of TQ (Flynn, Schroder, and Sakakibara, 1996). Deming (1993) also believed that it is the management's job to provide opportunities for education and training. He also advocated the need for consideration and cooperation (Supportive managers).

Work force management practices are linked to performance outcomes of managers. It has been well established in the literature (see, Yukl, Wall, and Lepsinger, 1990) that heightened performance occurs when these management practices are used. We believe that managerial performance outcomes are enhanced with the use of the above mentioned workforce practices when organizations have engaged in the use and emphasis of quality programs.

Thus,

H1: Networking, Team Building, Supporting, Mentoring, Inspiring, Recognizing, Consulting, Delegating, Planning, and Informing will have a stronger positive impact on managerial performance when the emphasis on quality is high than when low.

Work Force Management Practices NOT Conducive to Quality Management

Flynn, Schroeder, and Sakakibara (1995) envisioned that managers, who encouraged team problem solving by work-teams, would function as coaches rather than giving subordinates orders. Identifying work-related problems, and analyzing problems in a timely manner to identify causes and find solutions are some important elements of the 'Problem Solving' behavior (Yukl, 1994). Thus managers, rather than identify and solve problems themselves, would have the work-teams identify and resolve problems as those arise in the context of a high emphasis on quality. A company that places a high emphasis on quality strives to: ensure accuracy and consistency of work, monitor progress, and measure how well the work is conforming to the specifications (Reeves and Bednar, 1994). These tasks are better accomplished by following up, checking on the quality of work, and checking progress against plans -- the elements of 'Monitoring' behavior. Consistent with the notion of self-managing teams when the emphasis is high on quality (Cohen and Ledford, 1994; Hackman, 1986; Katzenbach and Smith, 1993; Lawler, Mohrman, and Ledford, 1992), a manufacturing manager is more likely to empower the work-teams (rather than do it him/herself) to check on the quality of work at the source (Monitoring), and decide task assignments among themselves (Clarifying). Deming (1986) opposed the use of extrinsic rewards (points 10 and 11 in his 14 point program) since they impede the implementation of quality management practices. Deming believed that instituting an individual reward scheme would foster adversarial intraorganizational relationships. Anderson et al. (1994) also favored elimination of merit-reward systems in order to facilitate the implementation of quality management. So, manufacturing managers would not demonstrate rewarding behavior when the emphasis is high on quality.

Thus,

H2: Problem Solving, Monitoring, Clarifying and Rewarding will NOT have a stronger positive impact on managerial performance when the emphasis on quality is high.

RESEARCH METHOD AND DATA ANALYSIS

Sample and Data Collection

The data were collected from five employees at three different levels of each participating company. Once a company agreed to participate, the response rate was about 62%. The subordinates were used for determining the work force management practices of their manufacturing managers. The superiors, i.e., the GMs, were used to obtain data on the performance of manufacturing managers. The data from the manufacturing managers were collected for assessing their companies' emphasis on quality. The distribution of the participating companies characterizes the type of industries in the original sample. Furthermore, a comparison of the plants that responded with a random sample of nonparticipating plants showed no significant differences for size. The average plant in our sample had annual sales of US \$43 million with 275 employees.

Operationalization and Validation of Measures

Quality. The emphasis on quality was measured using six items, which loaded on a single factor with an eigenvalue of 2.64. The reliability estimate of 0.71 for the quality scale exhibits acceptable

level of reliability.

Work force management practices. The specific measures for the work force management practices were obtained from Yukl (1990). The fourteen practices were operationalized using a total of seventy items. Cronbach's alpha coefficients for all of the work force management practices scales are very high (alphas 0.82 to 0.93). Before averaging the responses of multiple subordinates for a manager on each work force management practice, the level of agreement among subordinates was assessed, using a one-way analysis of variance on each scale score for the 99 companies. The F-tests were significant ($p < 0.05$) for each of the fourteen scales.

Managerial Performance. The performance of manufacturing managers was measured based on the perception of their superiors on a total of seven items, if relevant. The Cronbach's alpha for the seven-item scale was 0.80, which indicates a high level of internal consistency among items.

Exogenous Variables

Five variables—age, education, organizational tenure, job tenure, and the years of association between general and manufacturing managers—were identified as potential confounders. All five variables have been used as control variables in the regression equations.

Data Analyses

The hypothesized relationships between work force management practices and managerial performance are tested using the split-group regression analysis approach. We examined the above-median plants in the sample that place the highest emphasis on quality, as well as the below-median plants in the sample with the lowest emphasis on quality.

RESULTS AND DISCUSSION

Hypothesis 1, which predicted a stronger positive relationship between some work force management practices and managerial performance for the high emphasis on quality group than for the low emphasis group, is generally supported. For the sample with the high emphasis on quality, the ten practices jointly explain a very significant proportion ($R^2 = 0.684$, $F=4.909$, $p=0.0001$) of the variance in managerial performance. Furthermore, seven of the ten hypothesized practices are statistically significant at $p < 0.05$. As expected under H2, we did not find any significant relationship between three of the four practices and managerial performance for the high emphasis on quality group. Thus, Hypothesis 2 is also supported (except for Clarifying) via the non-significance of these three practices for the high emphasis group. This indicates that the three practices have no significant impact on managerial performance when the emphasis on quality is high. For the group with a low emphasis on quality, there is no significant relationship between these four practices and managerial performance, since the overall model is not significant ($F = 1.538$, $p=0.170$).

The above results show support for the moderating effect of quality on the relationship between the hypothesized work force management practices and performance, in general. The results indicate that most relationship oriented practices -- Supportive, Mentoring, Inspiring, Recognizing, and Consulting -- seem to play an important role in manufacturing settings characterized by a high

emphasis on quality, when tested individually after controlling for the influence of the five demographic variables. The present study was unable to support the hypothesized positive relationships between Delegating, Networking and Team Building practices, and managerial performance, for the 'high emphasis on quality' group.

From the work-oriented practices, Planning and Informing were hypothesized to have a stronger positive impact on managerial performance when a company highly emphasized quality. This study found support for both Planning and Informing practices. Further, as expected under H2, Problem Solving, Monitoring, and Rewarding have no significant performance implications, when the emphasis on quality is high.

CONCLUSIONS AND IMPLICATIONS

In general, the study shows that managers, who strongly demonstrate certain work force management practices when the emphasis is high on quality, are perceived as better performers. This study is a comprehensive evaluation of the performance impact of fourteen work force management practices when quality is emphasized. The knowledge of these work force management practices that have performance implications when the emphasis is high on quality, would facilitate the management and implementation of quality.

When the emphasis is high on quality, consulting, inspiring, recognizing, supportive, mentoring, planning, informing and clarifying practices seem more useful in getting the underlying tasks done effectively. These practices seemingly encourage employees to meet and exceed customer expectations through accurate, consistent, durable and reliable products, which characterize a high emphasis on quality. The study also unearthed that some practices - monitoring, problem solving, and rewarding – have no performance implication when the situation is characterized by a high emphasis on quality. Managers seem to encourage employees to monitor the progress and quality of their own work, and to solve problems at the source.

The identification of work force management practices that have a positive performance impact when the emphasis is high on manufacturing quality can help the management of manufacturing companies in the following ways. First, the findings of the study can be used to apprise manufacturing managers of the 'right' type of work force management practices for managing quality. Demonstrating the right work force management practices would facilitate the goal of effective management and implementation of quality at the plant level. Second, the findings of this study can help assess training needs for manufacturing managers in plants that emphasize quality. The training needs could be identified by comparing the inherent behavior profiles of manufacturing managers with the one appropriate for a high emphasis on quality. Having determined the gap, the manager may use one of the available management games and simulations to increase his/her score on the requisite practices.

References Available from the First Author

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