



The role of the reward system for a total quality management based strategy

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Abstract *This study examines the impact of reward practices on the relationship between an organizational strategy based on the principles of total quality management (TQM) and perceptions of firm performance. Major findings include: higher levels of firm performance were significantly correlated with greater use of TQM practices, but not with greater use of quality rhetoric in either formal strategic documents or informal strategic discussions; the use of extrinsic reward practices – including profit sharing, gainsharing, employment security, and comp time – exhibited a significantly positive moderating effect on the relationship between TQM and perceived firm performance. Regarding implications for practitioners, it is insufficient to include quality rhetoric in the formal and informal strategy. As the anecdotal literature has often advocated, the current research provides empirical support that management must “walk the talk” with regard to TQM efforts. Further, in order to realize even higher levels of firm performance, an organization should utilize reward practices which specifically complement its TQM-based strategy.*

The use of total quality management (TQM) as an organizational strategy continues to become more widespread in American organizations. Several recent studies support this conclusion. Lawler *et al.*'s (1995) extensive study of TQM and employee involvement (EI) practices reported that 76 per cent of the *Fortune* 1000 practice TQM, up from 73 per cent in 1990. Another study by Moran *et al.* (1994) reported 74 per cent of firms practice TQM. Lawler *et al.* (1995) also found that 78 per cent of *Fortune* 1000 organizations plan to increase their use of TQM, while only 5 per cent plan to decrease their use of TQM.

Empirical evidence lends support for the proposition that TQM, when practiced appropriately, has a positive effect on firm performance (General Accounting Office, 1991; Hendricks and Singhal, 1996; Lawler *et al.*, 1995). Yet reports of the failure and imminent death of TQM are surprisingly common in the popular and business press (Boje and Winsor, 1993; Choi and Behling, 1997; Fuchsberg, 1992; Hill, 1993; Jacob, 1993; Mathews and Katel, 1992; Parker and Slaughter, 1993; Spector and Beer, 1994).

While there are various reasons for these failures, a potentially important reason has received very limited attention. It is possible that the type of reward

practices used by an organization may play an important moderating role on the relationship between a TQM-based strategy and organizational performance. Traditional reward systems typically compensate organizational members based on their individual accomplishments and relative position within the organizational hierarchy. These types of reward systems are generally not considered to be congruent with participative, team-based, knowledge-oriented, quality-focused organizations (Lawler and Jenkins, 1994; Waldman, 1994).

While improper reward system practices may hinder the implementation of effective TQM, theorists and practitioners for the most part have ignored the relationship between reward practices and the implementation of a TQM-based organizational strategy (Lawler *et al.*, 1995; Lawler, 1994). The literature on the link between the reward system and TQM has been rather sparse. Noted TQM theorist Juran (1993) has cited shortcomings in the reward system as a key reason why he believes TQM often fails in US organizations. Several articles in practitioner oriented publications have also mentioned the need for alignment of the reward system to support successful TQM implementation (Clinton *et al.*, 1994; Wilkinson, 1993). Academics including Gomez-Mejia and Balkin (1992), Dean and Bowen (1994), and Waldman (1994) note that empirical research on the relationship between TQM and the reward system is practically non-existent. Additionally, Ledford (1995) cites the general paucity of research done on pay systems and their link to organizational development and change.

Clearly from both a practitioner and an academic viewpoint, research on the potential moderating effects of reward practices on the relationship between a TQM-based organizational strategy and firm performance is warranted.

Research model and relevant literature

The research model presented in Figure 1 shows the variables and the proposed relationships that are explored in this study. In the next sections, we will discuss:

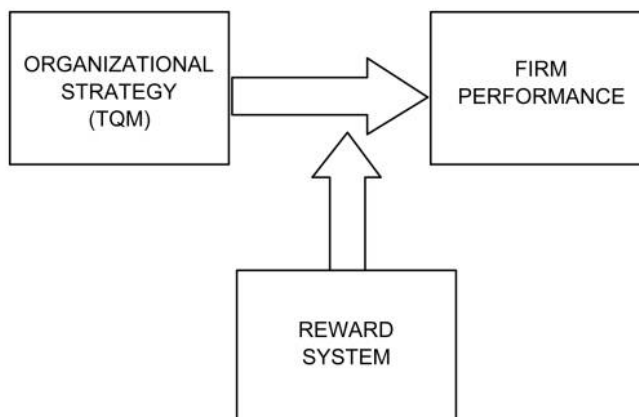


Figure 1.
Research model

- (1) organizational strategy and how a TQM-based approach can be operationalized by formal statements, actual TQM practices, and informal discussions;
- (2) firm performance and the key differences between objective and subjective measures; and
- (3) reward systems and the key links among a TQM-based strategy, firm performance, and attributes of rewards.

Organizational strategy (TQM)

While various types of organizational strategies have been identified over the years (Miles and Snow; 1978; Porter, 1980), this research is specifically concerned with a quality improvement or “TQM-based” organizational strategy. A TQM-based organizational strategy has been defined as a strategy based on a philosophy of continuously improving organizational processes in response to a demanding and changeable environment (Deming, 1986; Juran, 1974; Harrington, 1991; Ishikawa, 1985).

Two classic distinctions in the areas of strategic management and organization theory will be used to operationalize key aspects of a TQM-based organizational strategy. The first classic distinction is between *formulating* a strategic plan versus *implementing* the strategic plan (e.g. Schendel and Hofer, 1979). It is quite apparent by now that regardless of what strategic plan has been formulated with respect to a TQM-based strategy, it must be implemented effectively if the goals underlying the plan can be realized. Similarly, without a well-developed and well-articulated plan, efforts to implement strategic change will be haphazard at best, and perhaps even detrimental to the well being of an organization. Thus, it is important to assess not only the content of the plan itself, but also if the TQM-based strategy has been implemented and is actually being used to guide members’ behavior.

The second classic distinction is between the *formal* organization and the *informal* organization (e.g. Blau and Scott, 1962). Specifically, the TQM-based strategy may be formally documented as the official strategic plan, and included in vision and mission statements, policies, procedures, departmental charters, rules, and job descriptions. However, what is formally decreed on paper may not, in actuality, be guiding daily decisions and actions – due to the influence of the informal organization: how the work actually gets done. Moreover, if the TQM-based strategy is not explicitly included in the official company documents, this does not indicate whether and to what extent it is being disseminated through the informal organization: group meetings, hallway conversations, discussions between supervisors and their direct reports, and informal/unofficial e-mails, voice mails, and notes. Alternatively, both formal and informal mechanisms can be deployed to not only document the TQM-based strategy, but also to ensure that ongoing discussions occur throughout the organization with regard to using TQM practices.

As we shall see shortly, this research study will operationalize TQM-based strategy to take into account the important nuances that arise from the two classic distinctions. Specifically, it is important to distinguish:

- (1) the rhetoric of TQM in formal strategic statements, from
- (2) the actual TQM practices that are being used in the organization, and from
- (3) informal discussions regarding both the TQM content in formal strategic statements and the use of TQM practices on the job.

Incidentally, it was felt that distinguishing informal discussions of documents versus informal discussions of practices was too subtle to warrant separate attention. Furthermore, while it would be preferable to content analyze formal strategic statements for TQM-based rhetoric (rather than relying on recall from current or former employees), this is not always possible (due to confidentiality and difficulty of access, especially for privately held firms and family businesses). This measurement issue, however, will be discussed further in the concluding section of this paper.

Firm performance

Firm performance typically includes such bottom-line, financial indicators as sales, profits, cash flow, return on equity, and growth. Both objective and subjective aspects should be considered to obtain a full understanding of firm performance (Slevin and Covin, 1994).

From an objective standpoint, it is important to determine how a firm compares with its industry competitors when assessing firm performance (Dess and Robinson, 1984). Because of the multitude of competitive environments faced by firms in differing industries, knowing only absolute financial numbers such as sales, profits, cash flow, etc. is not very illuminating unless it is put into the context of how well the firm is doing compared to its competition. Therefore, an industry comparison approach is used when making objective assessments of firm performance.

Subjectively, it is important to ascertain the degree of importance that a firm attaches to various performance criteria and the level of satisfaction with the firm's performance on these criteria (Gupta and Govindarajan, 1984). Organizations may view different criteria as more or less important. The subjective performance of an organizational strategy is based on performance on the criteria which are considered important by an individual organization. This approach is used when making subjective assessments of firm performance.

Reward system

There is a substantial body of theoretical literature that links organizational strategy, human resource (HR) practices, and performance (Balkin and Gomez-Mejia, 1987; Hambrick and Snow, 1989; Lawler, 1986a; Lawler, 1986b; Ulrich

and Lake, 1990; Waldman, 1994). This literature typically suggests that human resource practices should be selected which complement and support an organizational strategy. More specifically, the reward system should be aligned to motivate employee performance that is consistent with the firm's strategy, attract and retain people with the knowledge, skills and abilities required to realize the firm's strategic goals, and create a supportive culture and structure (Galbraith, 1973; Kilmann, 1989; Nadler and Tushman, 1988).

Furthermore, the literature argues that alignment of the reward system with organizational strategy helps to determine organizational effectiveness. A review of the literature which links organizational strategy and human resource practices by Becker and Gerhart (1996) suggests that the human resource system can be a unique source of competitive advantage, especially when its components have a high degree of internal and external fit. Another review by Gomez-Mejia and Balkin (1992) contends that the old model of compensation (with pay structures based on job analyses, descriptions, specifications, and classifications) is no longer effective in today's business environment. They conclude that modern organizations must align their reward system practices with their organizational strategy in order to achieve higher levels of performance at both the individual and organizational level.

At this point, the literature has remained mostly at the conceptual level in discussing the link between organizational strategy, the reward system and firm performance. These propositions have remained largely untested and there is a recognized need for empirical work in this area (Lawler and Jenkins, 1994; Ledford, 1995; Waldman, 1994).

A goal of this research is to empirically identify reward practices which are supportive of a TQM-based organizational strategy. Blackburn and Rosen (1993) and Knouse (1995) provide some anecdotal support for the proposition that there is a link between reward practices, a TQM-based strategy, and firm performance. They investigated the HR practices of national, state, and local quality award winning organizations. They found that these organizations, which have been recognized by independent expert examiners as having been successful with TQM implementation, have also typically made changes in their reward systems to make them more supportive of a quality-focused strategy. Accounts of other successful organizations (Anfuso, 1994; Schonberger, 1994) give further anecdotal support to the notion that the reward system must be aligned to support successful implementation of a TQM-based strategy.

Some limited exploratory survey and empirical work has also been done in this area. In general it has been supportive of the idea that the reward system needs to be aligned to be supportive of TQM, but no studies have specifically examined the potential moderating effects of reward practices on the relationship between a TQM-based strategy and firm performance.

For example, a Conference Board (1991) survey of the *Fortune* 1000 found that 85 per cent of organizations practicing TQM have developed programs to reward individuals and teams for quality achievements. Of these organizations,

75 per cent tie quality to their performance appraisals, although mainly at the managerial level. A KPMG Peat Marwick (1991) survey found that 60 per cent of organizations with five or more years of TQM experience explicitly reward the achievement of quality goals. A Hewitt Associates (1996) survey of 27 utility companies found that 81 per cent have linked their compensation and reward systems to their quality initiatives.

Lawler *et al.* (1995) included a section on reward practices in their survey of the TQM and EI practices of the *Fortune* 1000. They used a composite index of reward practices which were proposed to be supportive of TQM including skill-based pay, profit sharing, gainsharing, and employee stock ownership. They compared this index to a wide range of TQM practices. Their results showed that only one TQM practice (use of self inspection) was significantly correlated with the rewards index (at the $p < 0.01$ level). They also surveyed the *Fortune* 1000 executives for their assessment of the success of various performance-based and employee involvement supportive reward practices. Their overall results showed that the respondents believe that these reward system practices are important contributors to organizational performance.

It is important to note that Lawler *et al.*'s (1995) approach suffers from a number of shortcomings. One that is especially relevant here is that their composite index contained only four reward practices. There are many other important reward practices which they neglected to examine in their study. As will be discussed shortly, the present research study examined a much wider range of reward practices.

Hypotheses

This research considers the reward system as a potential moderator on the relationship between organizational strategy and firm performance. Organizational strategy, as noted earlier, can be examined in three ways: official statements, informal discussions, and actual use of TQM practices. Accordingly, the following hypotheses are proposed:

- H1:* The more that organizations include explicit TQM rhetoric in their official statements of organizational strategy, the higher the perceived firm performance.
- H2:* The more that organizational members include explicit TQM rhetoric in their informal discussions of organizational strategy, the higher the perceived firm performance.
- H3:* The more extensively that organizations actually use the core TQM practices, the higher the perceived firm performance.

A review of reward practices literature uncovered a list of 33 reward practices which may conceivably have an impact on the success of a TQM-based strategy. A factor analysis of a wide variety of reward practices resulted in a two-factor solution:

- (1) intrinsic reward practices; and
- (2) extrinsic reward practices.

The details of this factor analysis are discussed in the next section.

The following hypotheses are made with regard to intrinsic reward practices:

- H4:* The more that organizations use the intrinsic reward practices, the more the use of TQM rhetoric in official statements of organizational strategy will be positively correlated with firm performance.
- H5:* The more that organizations use the intrinsic reward practices, the more the use of TQM rhetoric in informal discussions of organizational strategy will be positively correlated with firm performance.
- H6:* The more that organizations use the intrinsic reward practices, the more the use of core TQM practices will be positively correlated with firm performance.

The impact of the *extrinsic* reward practices factor is explored by testing the following hypotheses:

- H7:* The more that organizations use the extrinsic reward practices, the more the use of TQM rhetoric in official statements of organizational strategy will be positively correlated with firm performance.
- H8:* The more that organizations use the extrinsic reward practices, the more the use of TQM rhetoric in informal discussions of organizational strategy will be positively correlated with firm performance.
- H9:* The more that organizations use the extrinsic reward practices, the more the use of core TQM practices will be positively correlated with firm performance.

Methodology

Factor analysis of reward practices

A literature review uncovered a list of 33 reward practices which may conceivably have an impact on the success of a TQM-based strategy. Thirteen items were identified to measure these reward practices based on existing questionnaires from Lawler *et al.* (1995) and Wellins *et al.* (1993). New items were developed for the remaining practices. All items were measured using seven-point Likert scales. The instrument was administered to a sample of 94 people with at least six months of work experience. Responses were factor analyzed using principle components factor analysis with varimax rotation to identify homogeneous clusters of reward practices. This analysis indicated that a two-factor solution had the best mix of high alpha coefficients (average of 0.69) with low intercorrelations (average of 0.17). It was concluded that the two-factor solution offers the greatest internal consistency and independent representation of the reward system construct, and was used for testing the hypotheses related to the reward system.

The alpha for factor 1 was quite high (0.83). While the alpha for factor 2 was less strong (0.54), it is still within the expected range for a broad construct established by Van de Ven and Ferry (1980). Since the reward system would certainly be considered a broad construct, the alpha for factor 2 was deemed acceptable. Likewise, the average inter-factor correlation (0.17) is low and within the acceptable range established by Van de Ven and Ferry (1980).

A conceptual analysis of the items which comprised each of the factors in the two-factor solution showed that the factors essentially represent an intrinsic and extrinsic distinction of the reward system (Porter and Lawler, 1968). Factor 1, the intrinsic reward practices factor, includes the following reward practices:

- *Non-monetary forms of recognition* to acknowledge achievement of quality improvement goals such as plaques, certificates, letters, complimentary tickets, merchandise, etc.
- *Celebrations* to acknowledge achievement of quality improvement goals such as lunches, dinners, special events, etc.
- *Regular expressions of appreciation by managers/leaders* to employees to acknowledge achievement of quality improvement goals such as praise or “pats on the back”.
- *360 degree performance appraisals* wherein feedback from co-workers (other than just the immediate supervisor) and/or customers is incorporated into performance appraisals.
- Having a *suggestion system* available for individuals to make quality improvement suggestions, such as a suggestion box.
- Use of *developmental based performance appraisals* wherein performance appraisals are used primarily for developing employees to perform better in the future rather than for evaluating their past accomplishments and failures.
- *Quality based promotions* wherein promotions are based primarily on the achievement of quality-based goals as opposed to quantity-based goals.

Factor 2, the extrinsic reward practices factor, includes the following items:

- *Profit sharing* wherein the organization shares some portion of profits with employees.
- *Gainsharing* wherein portions of individual work unit gains in productivity, quality, cost effectiveness, or other performance improvements are shared with employees in the form of bonuses based on a predetermined formula.
- *Employment security* such as having a corporate policy or union contract designed to prevent layoffs.

- *Comp time* wherein workers are given the option to be compensated for overtime hours worked in the form of additional time off rather than additional pay.
- *Individual based performance system* wherein performance appraisals and pay increases are based primarily on individual achievements.
- *Quantity based performance appraisals* wherein performance appraisals are based primarily on achieving quantity related goals.

Research instrument

Existing scales and items were utilized or adapted where applicable to develop a questionnaire to test the aforementioned hypotheses. New items and Likert-type scales were composed when appropriate existing items or scales could not be located.

As previously discussed in the factor analysis section, intrinsic and extrinsic reward factors were developed based on a factor analysis of a comprehensive list of reward practices. The resulting intrinsic and extrinsic scales were used to operationalize the reward system variable. Respondents were asked to estimate the percentage of employees in their organization covered by these practices.

The list of core practices which constitute a TQM-based strategy identified by Lawler *et al.* (1995) was used to develop items to measure the degree to which an organization is practicing a TQM-based strategy. Respondents were asked to estimate the percentage of employees covered by each of these practices. An example is illustrated in Table I.

	None (0%)	Almost none (1-20%)	Some (21-40%)	About half (41-60%)	Most (61-80%)	Almost all (81-99%)	All (100%)
Profit sharing – wherein the organization shares some portion of corporate profits with employees	1	2	3	4	5	6	7
Celebrations to acknowledge achievement of quality improvement goals – such as lunches, dinners, special events, etc	1	2	3	4	5	6	7
Quality improvement teams – wherein groups of workers meet regularly to help solve problems or improve work processes	1	2	3	4	5	6	7

Table I.

Two additional items were developed to measure the formal and informal dimensions of strategy (see Table II). These items were used to assess the extent to which quality is considered in the formal and informal organizational strategy.

Firm performance was measured with a subjective scale of 18 items using a five-point Likert scale adapted from Gupta and Govindarajan (1984). Respondents were first asked to indicate the degree of importance they perceive that their organization attaches to each of the criteria. Examples of these items are shown in Table III.

Consistent with Gupta and Govindarajan (1984) and Covin *et al.* (1998), these importance scores are then mathematically adjusted to sum to 1.0 for the purpose of minimizing response bias. This ensures that respondents who might view all the performance criteria as “extremely important” will not generate inflated performance scores due to their personal upward response bias.

	Never (0%)	Almost never (1-20%)	Some times (21-40%)	About half (41-60%)	Most times (61-80%)	Almost always (81-99%)	Always (100%)	
The degree to which quality language (for example, “quality”, “customer satisfaction”, “continuous improvement”, etc.) is explicitly included in official strategic statements (such as the vision statement, mission statement, business plans, policies, procedures, etc.)	1	2	3	4	5	6	7	
The degree to which quality language is explicitly used in informal discussions of the strategic direction of the organization. For example, in decision making meetings and business discussions	1	2	3	4	5	6	7	Table II.

	Of little importance	Moderately important	Extremely important	Not applicable		
Revenue growth rate	1	2	3	4	5	n/a
Net profit	1	2	3	4	5	n/a
Quality of goods or services	1	2	3	4	5	n/a

Table III.

Respondents were then asked to indicate the extent to which they believe the organization's top managers are satisfied with the firm's performance on these same performance criteria on a five-point scale. The satisfaction scores were multiplied by the respective importance scores in order to compute a weighted average performance index for each organization. The equation used to calculate each firm's performance index is as follows:

$$\text{Performance} = \frac{\sum(\text{Criterion "satisfaction" score} \times \text{criterion "importance" score})}{\sum(\text{All criteria "importance" scores})}$$

Slevin and Covin (1994) recommend using objective scales to corroborate the findings of these subjective scales and permit an assessment of inter-method reliability. They have used these objective and subjective measures of performance in their research and have found a high correlation between the resulting data sets (Covin and Slevin, 1988). Accordingly, an objective, five-item, Likert scale adapted from Dess and Robinson (1984) was used for this purpose. This scale asks respondents to rate how their organization compares to its competitors on a series of key objective performance indicators. The correlation between the subjective and objective measures was subsequently examined and found to be quite high ($r = 0.35, p < 0.001$) which corroborates the reliability and validity of using the subjective scales. Examples of these items are shown in Table IV.

Reliability statistics of the scales experienced in this administration are reported in Table V.

	Lowest 1-20%	Lower 21-40%	Middle 41-60%	Next 61-80%	Top 81-100%	Not applicable
83. Total revenue growth (Average over the past three years)	1	2	3	4	5	n/a
86. Market share growth (Average over the past three years)	1	2	3	4	5	n/a

Table IV.

Scale	Mean	Stand.dev.	Alpha
TQM practices	25.37	8.71	0.86
Formal strategy	4.69	1.90	n/a
Informal strategy	4.37	1.61	n/a
Intrinsic rewards	22.77	9.11	0.83
Extrinsic rewards	17.73	6.19	0.54
Performance (subjective)	0.50	0.68	0.90
Performance (objective)	16.79	5.58	0.93

Table V.
Summary statistics of
scales

Alphas from previous administrations of scales which were developed from other sources were also collected and compared to this administration for consistency. The TQM practices scale exhibited a Cronbach alpha of 0.86, which is the same as the alpha reported by Lawler *et al.* (1995). Alphas for the formal and informal strategy scales were not calculated because these are both single item scales. The subjective firm performance scales had an alpha of 0.90 which compares similarly to the alpha reported by Covin *et al.* (1998) of 0.93.

Sample

A convenience sample of 100 graduate students enrolled in two Western Pennsylvania MBA programs was administered the questionnaire; 94 of the responses were usable, which computes to a 94 per cent response rate. Respondents were either currently employed or had left organizations within the past three months to pursue full-time graduate study; 52 per cent held non-managerial/professional positions, 31 per cent were front-line managers, 14 per cent were middle managers, and 3 per cent were senior managers.

For inclusion in the final sample, it was assumed that a respondent needed to have at least six months of employment at the organization in question in order to have adequate organizational knowledge to accurately complete the questionnaire. Post-administration interviews with the respondents reinforced this assumption as no one with at least six months experience reported difficulty in answering the questions. The mean length of employment of the respondents at the organizations in question was 32.9 months.

Although the sample was collected in Western Pennsylvania, only 32 per cent of the organizations were located in that region. This is due to the fact that a large number of the respondents had recently left positions in organizations located outside of Western Pennsylvania. More specifically, 29 per cent of the organizations were located in the USA, but outside of Western Pennsylvania, and 39 per cent of the organizations were located outside of the USA.

The organizations included in the sample had a mean number of 6,733 employees; 61 per cent were service organizations, 23 per cent were manufacturing, and 16 per cent were in the government/non-profit sector; 24 per cent of the organizations were unionized.

Hypothesis testing procedures

Regression analysis was used to test the main effects hypotheses and moderated regression analysis was used to test for the hypotheses regarding moderation effects. As is the case with the hypotheses used in this study, moderated regression analysis is typically used when hypotheses specify that the performance outcome is jointly determined by the interaction of the predictor and the moderator variables (Arnold, 1982; Sharma *et al.*, 1981; Venkatraman, 1989).

Moderated regression analysis is represented by the following set of equations:

$$Y = \alpha_0 + \alpha_1 X + \alpha_2 Z + e$$

$$Y = \alpha_0 + \alpha_1 X + \alpha_2 Z + \alpha_3 X \cdot Z + e$$

The first equation is a regular multiple regression equation and tests for main effects of X and Z on Y . The second equation tests for moderation. The moderation hypothesis is supported if the unstandardized coefficient (α_3) is significantly different from zero. This indicates there is a significant interaction effect between variables (X and Z) on performance (Y).

Results

TQM and firm performance

H1-H3 test for the main effects of a TQM-based organizational strategy on firm performance. The relationship between each of the three components of organizational strategy (formal, informal, and business practices) and firm performance was tested separately using linear regression. Results are reported in Table VI.

Equations 1 and 2 did not exhibit significant relationships between the use of TQM language in official strategic statements or in informal business discussions with firm performance. Therefore, *H1* and *H2* were not supported. Equation 3 exhibited a significant positive relationship ($p < 0.05$) between the use of the actual TQM practices and firm performance. Thus, *H3* was supported.

The effects of the reward system

H4-H9 test for the effects of the reward system on the relationship between a TQM-based strategy and firm performance.

The moderated regression analysis results of the intrinsic reward practices factor are presented in Table VII. In accordance with this procedure, each of the hypotheses was tested using two multiple regression equations. The main effects equations are denoted by an “a” following the hypothesis number. The moderation effect equations are denoted with a “b” following the hypothesis number.

Equation *H4a* was significant at the $p < 0.05$ level. *H5a* and *H6a* (both with p -values < 0.057) were very close to being significant at the $p < 0.05$ level. These results indicate that there is marginal support for the main effects of the use of intrinsic reward practices and a TQM-based strategy on firm performance for the organizations sampled.

	Regression equation	r^2	F	$p <$
<i>H1</i>	Firm performance = 0.55 – 0.01 (official statements)	0.001	0.09	0.769
<i>H2</i>	Firm performance = 0.45 + 0.01 (informal discussions)	0.001	0.07	0.794
<i>H3</i>	Firm performance = 0.08 + 0.02 (TQM practices)	0.045	4.37	0.039*

Table VI.
H1-H3: testing results

				Role of the reward system
Regression equation	r^2	F	$p <$	
<i>H4a</i> Main effects: firm performance = 0.28 + 0.02 (intrinsic rewards) – 0.06 (official statements)	0.070	3.42	0.037*	
<i>H4b</i> Moderator effects: firm performance = 0.09 + 0.03 (intrinsic rewards) – 0.02 (official statements) – 0.002 (intrinsic rewards × official statements)	0.072	2.34	0.625	
<i>H5a</i> Main effects: firm performance = 0.25 + 0.02 (intrinsic rewards) – 0.06 (informal discussions)	0.061	2.95	0.057+	
<i>H5b</i> Moderator effects: firm performance = – 0.17 + 0.04 (intrinsic rewards) + 0.04 (informal discussions) – 0.01 (intrinsic rewards × informal discussions)	0.070	2.26	0.353	
<i>H6a</i> Main effects: firm performance = 0.01 + 0.01 (intrinsic rewards) + 0.01 (TQM practices) Moderator effects: firm performance = 0.32 – 0.003 (intrinsic rewards) – 0.003 (TQM practices) + 0.0006 (intrinsic rewards × TQM practices)	0.061	2.95	0.057+	
<i>H6b</i> (intrinsic rewards × TQM practices)	0.065	2.08	0.546	

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Table VII.

H4-H6: testing results

H4b, *H5b*, and *H6b* looked specifically for the moderating effects of the use of the intrinsic reward practices on the relationship between a TQM-based organizational strategy and firm performance. None of the p -values of the cross product terms were significant at the $p < 0.05$ level. Therefore *H4-H6* were not supported.

The extrinsic reward practices hypothesis testing results are presented in Table VIII. The results of this analysis indicate that the use of the extrinsic reward practices together with a TQM-based strategy exhibit a significantly positive main effect on firm performance. This is evidenced by the main effects regression equations (*H7a*, *H8a*, and *H9a*) which were all significant at the $p < 0.01$ level.

Regression equation	r^2	F	$p <$	
<i>H7a</i> Main effects: firm performance = – 0.02 + 0.03 (extrinsic rewards) – 0.02 (official statements)	0.108	5.52	0.006**	
<i>H7b</i> Moderator effects: firm performance = 0.52 + 0.003 (extrinsic rewards) – 0.15 (official statements) + 0.007 (extrinsic rewards × official statements)	0.126	4.32	0.182	
<i>H8a</i> Main effects: firm performance = – 0.11 + 0.04 (extrinsic rewards) – 0.0004 (informal discussions)	0.104	5.26	0.007**	
<i>H8b</i> Moderator effects: firm performance = 0.09 + 0.02 (extrinsic rewards) – 0.05 (informal discussions) + 0.003 (extrinsic rewards × informal discussions)	0.105	3.53	0.681	
<i>H9a</i> Main effects: firm performance = – 0.39 + 0.03 (extrinsic rewards) + 0.01 (TQM practices)	0.129	6.71	0.002**	
<i>H9b</i> Moderator effects: firm performance = 0.62 – 0.02 (extrinsic rewards) – 0.03 (TQM practices) + 0.002 (extrinsic rewards × TQM practices)	0.166	5.96	0.048*	

Table VIII.

H7-H9: testing results

The “b” equations were used to test the potential moderating effects of the extrinsic reward practices on the relationship between a TQM-based organizational strategy and firm performance. The cross product term in equation 9b was significant at the $p < 0.05$ level. This indicates that the use of extrinsic rewards exhibited a significantly positive moderating effect on the relationship between the use of the TQM practices and firm performance. Therefore, support exists for *H9*.

Conversely, *H7* and *H8* were not supported. There was no evidence that the use of the extrinsic reward practices play a significant moderating role on the relationship between the use of TQM language in official strategic statements and firm performance, nor on the relationship between use of TQM language in informal discussions and firm performance.

Discussion and conclusions

Directions for researchers

The major findings from this research study include:

- (1) higher levels of firm performance were significantly correlated with greater use of TQM practices, but not with greater use of quality rhetoric in either formal strategic documents or informal strategic discussions;
- (2) the use of extrinsic reward practices – including profit sharing, gainsharing, employment security, and comp time – exhibited a significantly positive moderating effect on the relationship between TQM and perceived firm performance, while intrinsic reward practices did not reveal a significant moderating relationship.

More than anything else, this study underscores the importance of the reward system for implementing TQM-based strategies, especially putting the extrinsic reward system behind the use of TQM practices on the job. This set of findings reinforces Lawler’s (1981, pp. 8-9) comments about the important relationship between reward systems and all change efforts:

Reward systems can and often do have an influence on the effectiveness of organizational change efforts. When the impact of a change program on the reward system is not taken into account, the reward system can become an important impediment to individuals accepting the change. On the other hand, when the reward system is considered and made part of the change strategy, it can make a positive contribution to a change effort. It is precisely because of the systemic nature of organizations that almost any change effort has implications for the reward system.

From this challenging pronouncement in 1981 through the mid 1990s, as noted in the introduction to this paper, not much has changed. Researchers still cite the general paucity of research done on pay systems and their link to organizational development and change. Clearly, the current study should encourage others to proceed with empirical research on the impact of the reward system, reward system changes, and change initiatives (such as TQM-based strategies).

Moreover, we encourage researchers to improve on several of the limitations to the current study. To begin with, a much larger and more diverse sample of individuals and organizations should be included in subsequent studies. Our use of a convenience sample served our exploratory aims, but reaching active members in organizations (and not just students with work experience) is certainly more desirable. Furthermore, rather than relying on the recall of former employees, as we did, we encourage studies that are able to access the actual formal strategic documents of organizations so they can be content analyzed independently of other data and, thereby, neither rely on recall or the possibilities of common variance from all data being provided by the same respondents. Perhaps a special effort should be made to work with several organizations that would be willing to make available not only their formal documents, but also would allow researchers to interview employees concerning the content of their informal discussions regarding TQM practices. Our convenience sample did not allow this, especially since the respondents had already left their employers to return to school and did not have access to such private information (especially from the privately held firms and family businesses). Nevertheless, it is certainly possible that poor recall led to the insignificant results for both formal strategic statements and informal discussions, while the recall of actual TQM practices was more concrete and therefore more successful. Finally, it would be helpful, even if generally difficult, to gain access to actual performance data (including the quality measures of customer satisfaction) that are comparable across different organizations and industries. Again, this would minimize the use of perceptual data and distorted recall for a construct that, by definition, should be based on “hard” measures (independent of employee perception).

Implications for managers

Even though this study was exploratory in nature and admittedly has several limitations that need to be addressed in subsequent studies, the results are interesting for managers and actually fit with much of the popular discussions on the topic. Specifically, our findings point out the critical importance of translating quality rhetoric into concrete business practices in order to reap the potential performance benefits of TQM. In other words, organizations that just “talk TQM” without “walking the talk” (i.e. using the TQM practices) are not likely to exhibit the intended performance results.

This finding has important practical implications for senior managers and other administrators responsible for implementing TQM in their organizations. While this research does not support the efficacy of quality rhetoric, by itself, it would seem that managers must still *communicate their intentions* in formal and informal expressions of organizational strategy if quality practices are going to be subsequently enacted throughout the organization. Practically speaking, organizational members must be made aware of whatever changes will be forthcoming prior to and during the process of implementing change – recognizing, of course, that quality rhetoric per se is entirely insufficient, if it is

not directly followed by effective action. Therefore, managers should indeed communicate their intentions and reasons for quality improvement via the following forums, but must explicitly include planned actions steps – with a specific timetable – for implementing quality practices:

- (1) The business plan.
- (2) Vision statements.
- (3) Mission statements.
- (4) Annual planning meetings.
- (5) Posters, plaques and wall hangings.
- (6) Memos and letters from senior management.
- (7) Meetings at all organizational levels.
- (8) Informal encounters by managers with members of lower levels in the organization (i.e. “management by walking around”).

Since the results of this research underscore the limitations of mere quality rhetoric, managers must expand their formal systems and structures in order to ensure that TQM is truly incorporated into the actual business practices used throughout the organization. Therefore, managers must facilitate the adoption of key TQM business practices including:

- Use of a cross-functional planning approach when developing strategic plans. It is important to think cross-functionally and involve all organizational functions when developing strategic plans and setting organizational priorities because critical customer processes tend to cut across functional boundaries.
- Utilization of quality councils to ensure that the strategic quality plan is enacted throughout the organization. These are typically groups of managers who meet on a regular basis with the purpose of linking the operational activities of the organization with the strategic plan.
- Use of both work simplification and process re-engineering approaches to achieve quality improvement in critical business processes. This typically includes the chartering, training and support of quality improvement teams. These teams of workers have intimate process knowledge and influence to radically redesign or continuously improve key business processes.
- Giving all employees opportunities to be exposed directly to customers in order to gain a clearer understanding of customer needs and how their individual efforts contribute to customer satisfaction.
- Measuring internal and external customer satisfaction and providing feedback to all levels of the organization on the achievement of strategic quality goals.

This research also indicates the importance of aligning the reward system to support TQM. The analysis of the effects of reward practices on the relationship between a TQM-based strategy and firm performance sheds further light on how management can use the reward system to ensure that TQM is even more effective.

The use of appropriate *extrinsic* reward practices should be seriously considered to ensure that TQM business practices have an even greater positive effect on firm performance. More specifically, managers should implement policies and programs that link performance to the accomplishment of strategic quality objectives at the organizational, group and individual levels. This includes use of such reward practices as:

- *Profit sharing* that links organizational performance with individual rewards.
- *Gainsharing* which rewards work groups with bonuses for improvements they make in quality, productivity, or cost reduction.
- *Pay-for-performance* plans in which pay is based on achievement of quantifiable goals that are linked to the organization's quality strategy.
- *Comp time* that gives employees the option of receiving overtime or bonus compensation in the form of additional time off rather than pay.
- Strong assurances of *employment security* so that employees do not fear losing their jobs as a result of making their work processes more efficient.

It is also important to use *intrinsic* reward practices to support a quality strategy. While the empirical evidence was not as strong as for extrinsic reward practices, the use of intrinsic rewards tends to exhibit a positive impact on firm performance. More specifically, managers should:

- Put in place a system for employees to make quality improvement suggestions to management.
- Regularly give informal praise or "pats on the back" to employees who help the organization achieve quality goals.
- Hold celebrations like group lunches, dinners, or special events to acknowledge quality achievements.
- Give employees non-monetary forms of recognition such as plaques, certificates, letters of appreciation, complimentary tickets and merchandise to acknowledge quality achievements.
- Ensure the performance management system supports quality. For example, the use of 360 degree performance appraisals incorporating feedback from co-workers and customers should be seriously considered in order to encourage a customer satisfaction and teamwork focus. Performance appraisals should have a strong developmental component that is focused on helping individuals obtain the training and skills

necessary to be successful in achieving quality goals. Promotions should also be based on the achievement of quality related goals.

Our research suggests that use of reward practices can serve to increase the effectiveness of TQM practices. For example, managers should seriously consider using profit sharing, gainsharing, pay-for-performance plans, and suggestion systems to support their cross-functional planning efforts. Accordingly, these reward practices can be used by quality councils to reward quality teams and individuals for their efforts and successes at work simplification and process reengineering. Furthermore, managers can also use celebrations, non-monetary recognition, and informal praise to reinforce these TQM initiatives.

Management should put in place employment security policies to ensure that the increases in productivity resulting from the efforts of quality teams, suggestion systems, work simplification, and process reengineering do not result in the loss of jobs. The likelihood of organizational members continuing to contribute ideas and efforts towards quality improvement can quickly diminish if they fear that they or their peers will lose their jobs as a result of increased efficiencies. Moreover, it is a far better practice for organizations to redeploy their human assets in order to expand the current business or develop new markets – thereby effectively transforming excess capacity resulting from quality improvements into new value-added activities.

Direct exposure to customers and/or monitoring customer satisfaction can also be bolstered by the use of appropriate reward practices. For example, the use of 360 degree performance appraisals and developmental performance appraisals can incorporate customer input. Recognition and promotions based in part on contributing to increased customer satisfaction can also serve to facilitate these TQM initiatives – by putting the reward system directly behind TQM practices.

The foregoing suggestions should help managers and their organizations realize greater benefits from TQM. The same empirical relationships could also be expected for other change initiatives, such as culture change efforts, management (and employee) training programs, team building activities, and organizational restructuring. Based on the current research, one would expect that the strategy behind such change initiatives must also be clearly articulated and then effectively deployed throughout the organization. At the same time, the reward system could be adapted to provide extrinsic rewards to those who support the change efforts and actually apply the prescribed practices on the job. In essence, research studies on the effective use of reward systems to implement organizational change initiatives are long overdue.

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