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Running head: Continuous improvement orientation

**Changing employee attitudes: the independent effects of TQM and Profit Sharing on
continuous improvement orientation**

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ABSTRACT

This research examines the independent effects of two change interventions on employee attitudes. The first study evaluates the impact of a TQM intervention while the second study explores the effect of profit sharing on a core outcome of TQM; namely, continuous improvement orientation at the individual level. The research design involved a survey of employees with two measurement occasions: nine months and thirty two months after the commencement of a TQM intervention (n= 118); ten months prior to and twenty months subsequent to the introduction of a profit sharing program (n=141). The findings from study 1 indicate that participation in a TQM intervention can enhance the development of employees' orientation to continuous improvement, explaining 5% additional variance in the dependent variable. The results from study 2 suggest that perceived fairness of profit sharing and perceived ability to contribute to the profitability of the site were significantly associated with continuous improvement orientation, explaining an additional 6% of the variance. The implications of these findings for organizational change are discussed.

INTRODUCTION

Total Quality Management (TQM) has remained on the fringes of mainstream academic research while the practitioner-oriented literature on TQM has mushroomed, with an explosive number of articles promulgating the ‘how-to-succeed’ recipe. The antidote in the form of rigorous scientific studies is beginning to take effect, with recent contributions investigating a variety of theoretical and empirical issues surrounding TQM. These contributions have been partly overshadowed by a perception that TQM has a faddish character. However, Cardy and Stewart (1998) argue that particular quality programs may come and go as the fashion changes, yet the underlying principles may endure for years to come. Despite the emergence of more rigorous studies, empirical research examining and evaluating change in a TQM context remains quite elusive. The empirical research that does exist offers mixed support for the efficacy of TQM, with some studies suggesting that TQM can affect organizational performance and others failing to demonstrate any effect (Choi & Behling, 1997; Eskildson, 1994; Fisher, 1992; Gilbert, 1992; Mohrman, Tenkasi, Lawler & Ledford, 1995; Powell, 1995; Westphal, Gulati, & Shortell, 1997; Wruck & Jensen, 1994).

The mixed support for TQM may be the result of insufficient attention to attitudinal change. Several researchers have highlighted the importance of attitudinal change to the success of interventions such as TQM (Parker, Wall & Jackson, 1997; Tiara, 1986). Recently, Detert, Schroeder and Mauriel (2000) assert that the inability to change organizational culture may account for the success or failure of initiatives like TQM. More generally, Devos, Vanderheyden and Van den Broeck (2001) note that the failure of change frequently is a consequence of the lack of motivation and commitment of employees who are required to implement the change. Within the TQM arena, the dominant approach to achieving

organizational change is through the mechanisms of training and education (Parker et al., 1997) and at the same time, the importance of top management and first line supervisory support for the change is recognized (Coyle-Shapiro & Morrow, 2001). As Kaplan, Birmingham and Ferris (1998) argue, TQM's emphasis on logic and rationality implies that organizational members "who are not pro-quality at first merely need to be educated" (p.289). The prevalence of training as a key lever for change is borne out in the practice of TQM (Hackman & Wageman, 1995). The role of reward systems, as an additional means of achieving change is dismissed by the TQM authorities, who rely on the well documented problems of linking pay to performance as justification for their anti pay for performance stance (Hackman & Wageman, 1995). However, as the authors note, "the no-extrinsic-rewards principle, then, may be more an ideological stance of the TQM authorities than the results of reasoned judgment" (Hackman & Wageman, 1995, p.329). Contributors to the organizational change literature have highlighted the importance of reward systems in influencing the sustainability of change (Schneider, Brief & Guzzo, 1996), which may be germane to TQM given the time span required for the effects to occur.

This aim of this paper is to examine the effects of two methods of change on employees' orientation to continuous improvement. The first study empirically tests the assumption underpinning the TQM framework that training and education will lead to effective change at the individual level in relation to the goals of TQM (namely, employees' orientation to continuous improvement). The second study explores the effects of changes in the reward system (i.e. the introduction of profit sharing) as a means of effecting change in employees' orientation to continuous improvement. Each intervention relies on a different motivational basis to achieve attitudinal change. Profit sharing aims to elicit individual change through the use of extrinsic

incentives, while the introduction of TQM relies more heavily on the intrinsic motivation of individuals in their response to change.

TQM outcomes

Advocates of TQM are not in complete agreement on the factors that reflect the adoption of a TQM orientation. However, customer satisfaction, continuous improvement and teamwork frequently are cited as core factors for TQM (Dean & Bowen, 1994; Morrow, 1997). However, Reed and Lemak (1998) expand this to include empowerment and statistical process control, while at the same time recognizing continuous improvement as one of the central TQM doctrines. For employees, a significant aim of TQM is the broadening of work responsibilities. The adoption of TQM requires employees to reconceptualize the boundaries of their job, reshape their attitudes towards quality and engage in new behaviors. In essence, TQM blurs the boundary between previously defined in-role and extra-role behavior, such that what were considered discretionary functional activities now become part of an individual's job which they are expected to fulfil in a TQM environment. Waldman (1994) argues that work responsibilities in a quality culture would include “accomplishing tasks and taking initiatives above and beyond the call of duty, and sharing information with and helping co-workers” (p. 515). In terms of the key principles of TQM, employees are required to have a customer-focused orientation and develop attitudes and behavior that reflect a commitment to customer service; a pervasive emphasis on collaboration and co-operative efforts between individuals and groups within organizations (Stone-Romero & Stone, 1998), requiring an individual to develop a collectivist orientation and to engage in behaviors for the benefit of the group, and a continuous

improvement orientation emphasizing a proactive approach to preventing problems and a search for better ways of doing things (Dean & Bowen, 1994; Lawler, 1994).

Empirical evidence also suggests that the success of TQM initiatives requires a change in the way employees construe their work (Lawler, 1994; Parker et al., 1997). Oliver and Davies (1990), in examining the introduction of cellular manufacturing and just-in-time, found that problems occurred as a result of a lack of change in employees' thinking. Similarly, anecdotal evidence suggests that a common reason underlying employees' resistance to engaging in service quality behaviors is that they see those behaviors as outside the boundaries of their job (Feinberg & Levenstein, 1985), views expressed as 'that's not my job' (Morrison, 1997). In the context of TQM, employees need to change the way they construe their jobs. Specifically, a change is needed from thinking about improvements as extra role and discretionary to viewing improvements as an inherent part of the incumbent's job. A priori, employees need to develop an awareness of the importance of quality and accept the precepts of continuous improvement.

In this study, the focus is on continuous improvement at the individual level while recognizing that the construct could be applied to the group or the organization (e.g. Morrow, 1997). Wood and Peccei (1995) define quality consciousness as the relative strength of an individual's concern for the quality of his/her work (Wood & Peccei, 1995). A broader conceptualization of continuous improvement would involve the recognition and importance of quality, the acceptance of quality and continuous improvement precepts, and engaging in quality focused efforts and behaviors. The extent to which continuous improvement has been realized in an organization would be evident in the perceived responsibility for quality and participation in activities aimed at improving quality at the individual level of analysis, following Schein's (1980) view that organizational change is always mediated through individual changes.

TQM intervention: Training and education

For TQM to succeed in achieving its outcomes, organizations need to develop a quality culture emphasizing values, attitudes and behaviors consistent with the central principles of TQM. The achievement of change at the individual level may be a stumbling block to the success of new manufacturing technologies such as TQM (Taira, 1986, Parker, Wall & Jackson, 1997). An underlying assumption of TQM is that quality ultimately is the responsibility of top management and hence top management commitment and support is a precondition for the success of TQM. Therefore, a top down approach to the implementation of TQM is required whereby “both education about TQM and the implementation of TQM practices typically take place in a cascading fashion, with each layer carrying the message to the next lower level of the organization” (Hackman & Wageman, 1995, p.316). The use of training and education as a vehicle for achieving change in organizations as part of a TQM change process is consistent with the original conceptualization of TQM (Deming, 1986; Juran, 1989) and also is a common practice with the majority of organizations embarking upon TQM (Hackman & Wageman, 1995).

Employees who participate in TQM should have as a consequence a heightened recognition of the importance of quality, should accept the principles of continuous improvement and should engage in efforts to prevent mistakes and make suggestions for improvement. However, participation in training per se may not be sufficient to bring about desired changes in employee attitudes and behavior (Tannenbaum, Mathieu, Salas & Canon-Bowers, 1991). Therefore, how employees assess the TQM intervention in terms of its benefits may be important in determining the degree to which attitudinal change occurs. With this in mind, two aspects of

the TQM intervention are explored: the degree of employee participation and the extent to which they judge the intervention to be beneficial. The following proposition is examined:

Proposition 1: Employees' experience of TQM (participation in TQM and assessment of TQM) will lead to the enhancement of a continuous improvement orientation

Profit-Sharing

The role of reward systems as a means of achieving change as part of a TQM process is controversial. The fundamental issue of this debate focuses on individual motivation – why an individual chooses to initiate effort in a certain activity, the amount of effort expended and the persistence of effort over time (Campbell & Pritchard, 1976). In particular, TQM authorities favor a reliance on intrinsic rather than extrinsic motivation, based on the potential risks of basing rewards on performance. Among the potential risks of linking pay to performance is its potential to undermine intrinsic motivation (Deci, 1971). The organization may only get what it pays for (Kerr, 1975) and the saliency of what gets rewarded may misdirect employee attention (Hackman & Wageman, 1995). Organizational practice follows suit, with many organizations opting to rely on intrinsic motivation (Hackman & Wageman, 1995) despite claims that both intrinsic and extrinsic motivation can be promoted simultaneously (Wageman, 1995). In light of this apparent opposition to linking rewards to TQM change, what arguments can be marshaled to support the contrary position?

Organizational change researchers recognize the importance of reward systems. For example, Schein (1990) suggests that reward systems can be used as one mechanism to achieve

culture change, while Schneider et al. (1996) argue that the focus of rewards determines the climate for the sustainability of change. Furthermore, organizational justice researchers have explicitly confronted the issue of rewards systems in the context of TQM. Cobb, Wooten and Folger (1995) argue that since TQM involves changes in what employees are expected to contribute, some form of organization-wide reward plan needs to be incorporated into the compensation system. Thus, if TQM is to gain a firm foothold in organizations, employees must have the opportunity to reap the financial benefits of their efforts. Along similar lines, Hackman and Wageman (1995) propose that the absence of rewards may not present a problem initially, but over the longer term it may lead to a motivational backlash when employees realize that they are not benefiting from the organization's TQM endeavor. The argument that profit sharing or gain sharing can contribute to the achievement of TQM goals through its reinforcement effect or by enhancing the perceived fairness of the outcomes has instant appeal. Yet, these types of reward systems have well documented flaws (Kruse, 1992) that may counteract or eliminate the potential effects of profit sharing on achieving the desired change in a TQM context.

Florkowski and Schuster (1992) argue that the diversity of empirical results associated with profit sharing may reflect a failure to consider employee perceptions of profit sharing. They contend that employee perceptions will determine the degree of support for profit sharing, which in turn will impact attitudinal outcomes. The drawbacks of organization-wide schemes are clear: the difficulty an employee may have in perceiving a link between their behavior and the organizational outcomes on which rewards are based (Milkovich & Wigdor, 1991), and the potential demotivating effect resulting from perceptions of inequity in the distribution of rewards. Consequently, drawing on the work of Florowski and Schuster (1992), it may be

important to capture employee perceptions of the extent to which they can affect organizational outcomes and of the perceived fairness of the scheme.

A justice framework argues that the adoption of TQM creates an inequity between employee contributions and the organizational inducements they receive. Eliciting broader job responsibilities may be perceived by employees as creating an inequity in the exchange relationship, which may require reciprocation from the organization so that employees continue to fulfill their TQM responsibilities. One available method of organizational reciprocation may be a profit sharing scheme whereby employees are financially rewarded for their efforts. Consequently, if employees perceive the profit sharing plan as fair, they may be more likely to embrace and accept the principle of continuous improvement.

Although the distal link between the individual and organizational outcomes is widely documented as a problem for profit sharing plans, this view is challenged by Morrison (1997). She argues that basing rewards on organization-wide performance may broaden employees' role definitions and implicitly signal to employees that "they are responsible for any activities that help the organization achieve its objectives". This will lead to a broader view of one's role responsibilities and thus a stronger sense of obligation to display service quality behaviors that are not formally specified (p. 241). Clearly, the degree to which an organization-wide reward plan can elucidate the link between individual behavior and collective outcomes may be contingent on a number of factors (size of the organization, task structure, culture and previous organizational changes) rather than acting as a universal flaw in all organizational-level reward plans. Therefore, if an individual feels that he/she can contribute to the profitability of the organization, they may be more likely to adopt attitudes and behaviors consistent with TQM. Overall, if employees view the plan as fair and feel they can make a difference, this should lead

to a more conscious effort to ensure quality and to suggest ways of making work more efficient as this carries with it the potential for greater financial benefits.

Proposition 2: Employees' experience (perceived fairness and felt ability to contribute to organizational outcomes) of profit sharing will enhance the development of an orientation toward continuous improvement.

In sum, the independent studies examine the effects of two methods of change that are founded upon different assumptions about individual motivation. Consistent with the original distinctive TQM philosophy, the first study examines whether a reliance on intrinsic motivation leads to desired attitudinal outcomes. The second study examines whether attitudinal change consistent with the goals of TQM results from a reliance on extrinsic motivation

METHOD

Data for this study were obtained from a sample of employees in two independent production sites of a UK multinational supplier of engineering to the automotive and aerospace industry over the same time period. The approach to data gathering and the measures used (with the exception of those relating to TQM and profit-sharing) were identical in both sites. Prior to the commencement of this study, the researcher met with trade union representatives who were informed of the research and asked to support it. Subsequently, as part of a quarterly communications day, the researcher communicated the purpose and intended use of the survey. Employees were informed that the researchers were independent from the organization. All employees were told that the surveys would be voluntary and that no one in the organization would see their individual survey responses. Furthermore, the results of the survey would be

disseminated to employees during a subsequent communications day. These steps were all taken to facilitate continued cooperation for the duration of the research.

STUDY 1: TQM

Participants and Procedure

The introduction of TQM at this site began with a training and education program for the senior management team that was cascaded throughout the site. In attempting to create an involvement culture as a means to achieving continuous improvement and customer satisfaction, the training covered issues such as leadership styles, empowerment, management of groups alongside the use of TQM tools and techniques. A steering committee was set up to oversee the training process and subsequently to evaluate suggestions for improvement from the problem solving groups set up. In keeping with the traditional TQM philosophy, there was no financial incentive offered to employees for their participation, which was voluntary. Data were collected nine months after the announcement of the TQM intervention (time 1) and again at thirty-two months (time 2). At time 1, only 19% of respondents were actively participating in the TQM intervention, indicating that the TQM change intervention was at an early stage of development. Although this does not permit a valid “before and after” study, the time lag does permit an evaluation of the TQM intervention as it develops over an approximate two year period and as a consequence allows reasonable time for the effects of the intervention to materialize.

A random sample of 40% of employees stratified by work area was asked to participate in the research. 166 out of 186 respondents completed the questionnaire 9 months after the commencement of TQM (Time 1) and 118 completed the subsequent questionnaire at Time 2 (32 months after the commencement of TQM). Of the 48 respondents who only completed the survey at Time 1, 38 had left the organization and the remaining 10 were unavailable to complete

the second survey. The response rate was 89% and 92% at Time 1 and Time 2 respectively. The characteristics of the matched sample did not differ significantly along the dimensions of age, job tenure, organizational tenure or job type from the original sample. The sample used in the subsequent analysis was confined to the matched sample of employees who completed questionnaires on the two measurement occasions (n=118). At time 2, the participant group had a mean age of 46.9 years, a mean organizational tenure of 16.5 years and a mean job tenure of 8.85 years. The sample consisted of machine operators (33.3%), craftsmen (26.4%), engineers (14.5%), material/purchase controllers (7.9%) and the remainder of the sample in administrative positions.

Measures

The scale items are presented in Table 1 with the alpha coefficients for the respective scales for study 1 and study 2. With the exception of the intervention variables (TQM and profit sharing), the remaining variables are identical between the two sites.

Dependent variable

Continuous improvement orientation. Continuous improvement orientation was measured at Time 1 and Time 2 with eleven items designed for this study. Specifically, items 1-3 capture recognition of the importance of quality and continuous improvement; items 4-7 capture an individual's acceptance of continuous improvement precepts and; items 7-11 capture quality focused behaviors. Respondents were asked to indicate the extent of their agreement along a 7-point Likert scale (strongly disagree=1, strongly agree=7).

Independent variables

Organizational commitment. Organizational commitment was measured at Time 1 using six items from the nine item scale developed by Cook and Wall (1980) for use in samples of blue collar employees in the UK. This six-item scale assesses an individual's identification, involvement and loyalty toward the organization using a 7-point Likert scale. The development of the scale draws upon the work of Buchanan (1974) and Porter, Steers, Mowday and Boullian (1974), whereby commitment is viewed as comprising three interrelated components: identification, involvement and loyalty. The authors report alpha coefficients of .87 and .80 for two independent samples. Other investigators report alpha coefficients of .82 (Peccei & Guest 1993) and .86 (Peccei & Rosenthal, 1997).

Supervisory reinforcement of quality and improvement. This scale assessed an individual's perception of the degree to which his/her immediate supervisor displayed commitment to quality and improvement. At time 1, respondents were asked to indicate the extent of their agreement or disagreement (a 7 point scale anchored with strongly agree and strongly disagree) to six items relating to the behavior of their immediate supervisor.

Top management support. Top management support for quality was measured at time 1 with a five-item scale designed for this study. Respondents were asked to rate whether top management support has improved over the prior year. Respondents used a seven-point scale (7=strongly agree; 1= strongly disagree).

TQM intervention. In capturing respondents' responses to the TQM intervention, two elements were operationalized. First, one item assessed the extent to which employees were participating in the intervention along a five point scale from "not at all" to "a very great extent". A dichotomous variable yielding two categories of participants and non-participants would not have accurately represented the extent of employee participation in the TQM intervention. The

categories of “not at all” and “not much” reflected respondents’ awareness of the intervention. The category “to some extent” was used where respondents had received training but were not participating in improvement teams. Finally, the categories “to a great extent” and “to a very great extent” were used for respondents who received training and were participating in formal improvement teams. The second element of the TQM intervention that was operationalized was how respondents judged or assessed the beneficial impact of the intervention. A six-item scale was developed for this study that captures respondents’ assessment of the degree to which they felt that the TQM intervention was beneficial.

INSERT TABLE 1 ABOUT HERE

Analysis

Hierarchical regression analysis was used to test the hypotheses. Prior research has demonstrated that attitudes and behaviors at work can be influenced by demographic characteristics (Mowday, Porter, & Steers, 1982). Therefore, three demographic variables (age, job and organizational tenure) were included to reduce the possibility of spurious relationships based on these types of personal characteristics. Several additional variables were controlled for in the analysis as they potentially could affect the dependent variable. Respondents were asked if the content of their job had changed substantially and if they had a change of supervisor between time 1 and time 2, as this could potentially affect their orientation to continuous improvement. TQM scholars have stressed the importance of top management and first line supervisory support to any TQM effort (Coyle-Shapiro, 1999; Morrow, 1997; Waldman, 1994). Numerous empirical studies support a link between organizational commitment and positive organizationally directed behaviors (Coyle-Shapiro, Kessler & Purcell, 1999; Meyer, Allen &

Smith, 1993; Moorman, Niehoff & Organ, 1993). Consequently, top management for TQM, supervisory reinforcement of quality and improvement and organizational commitment were also controlled for in the subsequent analysis.

The hierarchical regression analysis was conducted in the following manner. Continuous improvement orientation at Time 2 was regressed on age, job tenure, organizational tenure, change in job content, change in supervisor, top management support, supervisory reinforcement of quality and improvement, organizational commitment and continuous improvement orientation at Time 1. In step 2, participation in TQM and perceived benefit of TQM were entered in the equation. This provides the incremental change in explained variance of continuous improvement orientation at time 2 that is attributable to the TQM intervention and goes beyond that explained by the predictors entered in step 1.

Results

Table 2 reports the means and zero order correlations of the measures used in study 1. The measures have alpha coefficients that are judged good at .7 or higher (Hair, Anderson, Tatham & Black, 1992). To test the construct validity of continuous improvement orientation, a minimum requirement is that the measure of continuous improvement should discriminate between those in managerial positions and employees (since continuous improvement is more integral to supervisory positions than to employee positions, in terms of a concern for quality, problem solving and searching for improvements). If the measure does not discriminate in this way, it may be unlikely to be sensitive to change over time. Independent sample t-tests between supervisors and employees reveal statistically significant differences (mean supervisor score 6.03; mean employee score 5.46 significant at .01 level). Paired sample t-tests indicate that

continuous improvement orientation has increased significantly between time 1 and time 2 from 5.54 to 5.74 (significant at the .01 level). Therefore, the continuous improvement measure does not appear to have a ceiling effect, indicating that the measure is sensitive enough to capture change.

INSERT TABLE 2 ABOUT HERE

The results of the hierarchical regression analyses are presented in Table 4. As the results show, participation in TQM has a significant positive effect ($\beta = .19, p < .05$) on employees' orientation to continuous improvement. However, perceived benefit of TQM was not significantly related to continuous improvement orientation ($\beta = .13, ns$). Thus, greater employee participation in the TQM intervention is associated with a more positive continuous improvement orientation. The inclusion of the TQM variables explain unique variance in the continuous improvement orientation at Time 2 above that accounted for by all the variables entered in the previous step, including continuous improvement orientation at Time 1 ($\Delta F 4.91, \Delta R^2 = .05, p < .01$).

STUDY 2: PROFIT-SHARING

Participants and Procedure

The aim of this study was to examine the effect of profit sharing on employees' orientation to continuous improvement. Prior changes at the site included the introduction of TQM, which attempted to inculcate the values of continuous improvement, customer satisfaction and teamwork through a flexible cellular manufacturing structure in the late 1980s. Practices

such as communications and team briefings, as well as the display of cell performance measures, served to reinforce the operation of cells as 'mini-businesses'. Subsequently, an opportunity arose for a management buy-out that separated the site from its multinational owner. This paved the way for management to introduce a profit related pay scheme, an opportunity that previously was not available.

The profit sharing scheme introduced by the organization carried certain useful tax relief, as long as it covered at least 80% of employees in the employment unit. Accordingly, management canvassed employees in January 1994 to assess their desire to join the scheme. This canvas was not done well. It was preceded by hasty communication about the scheme in which managers, themselves not fully understanding it, attempted to explain it to employees. Not surprisingly, the 80% participation rate was not attained. Subsequently, a more considered attempt was subsequently made to communicate the benefits of the scheme (i.e., profit sharing represented a possible supplement to their base pay), and employees were given time to digest the intricacies of how it would operate. In August 1994, the scheme was re-launched with a participation rate of virtually 100% (two individuals opted out of the scheme). By March 1996, it was midway through its second year of operation. Employees therefore were accustomed to its workings and had received interim payments and a final pay out in September 1995 of an average of £500, or about 4% of their annual salaries.

Data were collected on two measurement occasions: 10 months (time 1) prior to the introduction of the profit related pay scheme and 20 months (time 2) subsequent to its introduction when the plan was in its second year of operation. The method of data collection was identical to that employed in study 1. 186 out of 206 respondents completed the survey at Time 1, yielding a response rate of 90%. Thirty employees left the organization in the

intervening two and a half year period. Of the remaining 156 asked to complete the second survey, 141 responded yielding a response rate of 90%. At time 2, the participant group was 91% male, with a mean age of 41.9 years, a mean job tenure and tenure at the site of 6.9 years and 12.1 years respectively. The sample consisted of 44% manufacturers, 22% engineers, 13% administrative/clerical, 12% supervisors/managers, 3% research and 6% in a number of production related positions.

As the measures common to both studies already have been presented, the discussion here is confined to the measurement of profit sharing. Measures were specifically developed to capture two aspects of the profit-sharing plan that the literature suggests are important in understanding the consequences of such a scheme. Perceived fairness was measured at time 2 with a four-item scale (7= strongly agree; 1=strongly disagree) assessing respondents' judgement as to the beneficiaries of the profit-sharing plan. Felt ability to contribute was assessed with six items capturing an individual's perception of the degree to which they personally could affect the profitability of the site.

Results

Table 3 reports the means, standard deviations and zero order correlations of the measures used. The reliabilities of the measures are acceptable (ranging from .61 and .85). Similar to the results of study 1, independent sample t-tests reveal a significant difference in the continuous improvement orientation of supervisors and employees (mean score for supervisors 6.06 and 5.53 for employees significant at .01 level). Paired sample t-tests indicate that continuous improvement orientation has significantly increased between time 1 and time 2 (5.71 at time 1 and 5.85 at time 2 significant at .01 level). These results are consistent with the results

from study 1 in terms of the absence of a ceiling effect for the measure of continuous improvement.

INSERT TABLE 3 ABOUT HERE

The hierarchical regression analysis conducted in study 1 was replicated in study 2 for step 1 of the equation. In step 2, the TQM intervention variables from study 1 were replaced with the profit sharing variables. Perceived fairness of profit-sharing and felt ability to contribute were entered in step 2 to examine the unique, if any, contribution made by the profit-sharing variables to explaining continuous improvement orientation at time 2.

Table 4 presents the results of the hierarchical regression analysis. As shown, perceived fairness has a significant positive effect on employees' continuous improvement orientation ($\beta = .17, p < .01$). Employees who perceive the profit-sharing plan as fair are more likely to enhance their orientation to continuous improvement. Similarly, felt ability to contribute is positively related to the development of continuous improvement ($\beta = .16, p < .05$). Employees who believe that they can contribute to the profitability of the site are more likely to develop a continuous improvement orientation, consistent with what TQM purports to accomplish. Together, the inclusion of the profit-sharing variables explains additional variance in continuous improvement orientation at Time 2 ($\Delta F 7.68, \Delta R^2 = .06, p < .01$) above that accounted for by the other variables including continuous improvement orientation at Time 1.

INSERT TABLE 4 ABOUT HERE

DISCUSSION

This research effort represents an attempt to evaluate the effects of two independent change interventions on employees' orientation to continuous improvement. The findings suggest that organizational interventions that differ in terms of eliciting intrinsic versus extrinsic driven change are equally effective in developing a continuous improvement orientation amongst employees. Enhancing how employees view continuous improvement is important, in view of the arguments presented supporting a link between employee driven change and organizational effectiveness (Ashford, Rothbard, Piderit & Dutton, 1998; Frese, Kring, Soose & Zempel, 1996; Scott & Bruce, 1994).

Consistent with the prediction, the results of study 1 indicated that employee participation in a TQM intervention can enhance the development of a continuous improvement orientation in tune with the pursuance of TQM. In turn, this provides initial empirical support for training and education reinforced through TQM practices as a lever for change and as such is consistent with recent empirical evidence on the development of strategic orientation (Parker et al., 1997). Although employee perceptions of the benefit of the TQM intervention did not have a significant direct effect on the dependent variable, it may have had an indirect effect through its effect on employee participation. Perceptions of the benefit of TQM may influence an employee's decision to participate in the intervention and/or their decision to continue to participate. Over the time span of two years, it appears that a TQM intervention can achieve one of its goals, that is, the development of continuous improvement amongst employees. However, as Steel and Jennings (1992) observe, initial improvements in attitudes associated with the introduction of Quality Circles were not sustained over time. Although there are distinct

differences between Quality Circles and TQM, the issue of sustainability of attitudinal change in a TQM context merits consideration.

The findings of study 2 support the use of extrinsic means to effect change in employees' orientation to continuous improvement. Specifically, continuous improvement orientation is likely to be enhanced by the introduction of profit sharing if it is seen to be fair and if employees believe they can contribute to the profitability of the site. Previous research has highlighted that the understanding of the group pay plan is linked to perceptions of fairness (Dulebohn & Marticchio, 1998). In addition, the justice literature would suggest that employee participation in the procedures adopted to implement profit sharing also would enhance perceptions of justice. Therefore, the process by which profit sharing was introduced at the site (communication to employees and employees' vote in terms of whether the scheme should be adopted or not) may have facilitated perceptions of fairness.

Perceived ability to contribute to organizational outcomes appears to be important in affecting attitudinal change. The context in which profit sharing was introduced may have been important in facilitating individuals' beliefs that they can make a difference to organizational outcomes. Specifically, the prior changes introduced may have provided the basis for a stronger link between the individual and the outcomes of the site. It is possible to speculate that practices such as the dissemination of information relating to customer orders, scrap rates, defects and productivity at the workgroup level may have served to highlight the effect of the individual on organizational outcomes through its effect on the performance of the workgroup.

The impact of profit sharing on continuous improvement orientation sends a clear message to those advocates who dismiss the influence of extrinsic rewards. Rather, profit sharing may provide a means for organizations to help sustain and reinforce change that is

consistent with TQM. Of course, this may be subject to an important caveat. Linking an element of employees' pay to the profitability of the organization may have a positive effect as long as profitability targets are achieved. The key issue in terms of the effects of profit sharing may come when profitability targets are not achieved. Then, the critics of 'paying for quality' may indeed come across evidence to substantiate their warnings.

The implications of these findings for the introduction of change are twofold. First, the two studies confirm long-standing arguments on the importance of participation in the change process. The level at which participation occurred differed. The introduction of TQM was initiated by management but the decision to participate was made by employees, whereas in the case of profit sharing the ultimate decision to accept or reject the profit sharing plan was firmly in the hands of employees. Although participation may not be the only or the most important factor in determining the outcome of a change process, its effect in creating a readiness for change cannot be overlooked.

Second, the findings tentatively suggest that different types of change can achieve broadly similar outcomes. While a TQM intervention may achieve attitudinal change primarily by relying on the intrinsic motives of employees, this may need to be supplemented in the longer term with change that carries with it extrinsic benefits so as to help ensure the sustainability of change. This is consistent with Hackman and Wageman's (1995) observation that the longer an organization's experience with TQM, the greater the reliance on extrinsic rewards to pursue the goals of TQM. Although the present studies investigated the independent effects of the two change interventions, they could be used simultaneously. As Wageman (1995) argues, intrinsic and extrinsic motivation can be pursued concurrently. Individual difference theory (Armenakis, Harris & Mossholder, 1993) suggests that individuals may respond differently to the same

message because of differing cognitive structures. Given that individuals may respond differently to the same change stimuli, organizations may be more successful if they can use a combination of intrinsic and extrinsic levers for achieving change. This view is also consistent with the arguments presented by researchers concerning the sustainability or institutionalization of change. Robertson, Roberts and Porras (1993) argue that the introduction of a multifaceted intervention increases the likelihood that the change effort will generate the desired results. To this end, profit sharing may facilitate the continued acceptance of the principles of TQM by employees.

In interpreting the findings of this study, its limitations must be considered. First, the TQM setting does not conform to a 'before and after' study but rather examines the effect of TQM as it develops over a two year period. Second, the profit-sharing plan, as with any organizational-level pay plan, eliminates the use of a control group. The absence of a control group of individuals who did not participate in the profit sharing plan makes it difficult to eliminate alternative explanations for the findings. In view of the near 100 per cent of employees who voted to adopt the plan, the opportunity for a control group was unfeasible. Third, the sample consists of employees in a manufacturing setting and this may be unique enough to limit the external validity of the findings.

Fourth, some of the measures used (e.g. continuous improvement orientation, perceptions of profit sharing) were expressly designed for this study and do not have established records of reliability and validity. In addition, the research setting did not allow an assessment of whether the two organizational interventions resulted in higher level of individual performance as measured by objective means. Another possible limitation of this study is that all the variables were measured with self-report survey measures. Consequently, the observed

relationships may have been artificially inflated as a result of respondents' tendencies to respond in a consistent manner. However, more recent meta-analytic research on the percept-percept inflation issue indicates that while this problem continues to be commonly cited, the magnitude of inflation may be over-estimated (Crampton & Wagner, 1994).

Future research could pursue several lines of investigation. Future research could examine the extent to which synergistic effects occur as a result of the implementation of TQM and profit sharing. Second, the constructs of taking charge (Morrison & Phelps, 1999) and the functional participation dimension of organizational citizenship behavior (Van Dyne, Graham & Dienesch, 1994) seem to share some common conceptual ground with continuous improvement orientation. Consequently, the discriminant validity of the measure of continuous improvement orientation needs to be assessed further. Finally, the scope of this study was limited to examination of the effects of organizational interventions on continuous improvement orientation. As noted by Coyle-Shapiro and Morrow (2001), personality traits may play an additional role in predisposing some individuals to accept and embrace the principles of TQM over others. Future research could examine how individual dispositions influence receptivity to change and their effect on subsequent attitudinal and behavioral outcomes.

In sum, this research demonstrates that different change interventions can be used to enhance the continuous improvement orientation of employees. This suggests that while the use of profit sharing may facilitate the achievement of TQM outcomes, its inclusion as part of a TQM philosophy may undermine its distinctiveness from other organizational interventions. Clearly, for TQM proponents, a tradeoff may be necessary between efforts to sustain change and preserving the distinctive domain of TQM.

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TABLE 1. Measurement of variables

Items	Study 1	Study 2
<u>Continuous Improvement orientation</u>		
The quality of my work is important to the success of the organization	.73 at T ₁	.78 at T ₁
The quality of my work affects the work of other people in ____	.84 at T ₂	.78 at T ₂
Continuous improvement is essential for the future success of the site		
Looking for ways of improving how things are done around here is part of my job		
To know that I had made a contribution to improving things around here would please me		
I am not paid to think of ways of improving things around here Ψ		
I am strongly committed to Total Quality		
I often put forward ideas and suggestions without expecting extra rewards		
In my work area I am always looking for ways to prevent mistakes		
I frequently make suggestions to improve the work of my work area		
I have put a lot of effort into thinking about how I can improve my work		
<u>Top Management Support</u>		
Compared to a year ago:	.79	.85
Top management is more committed to Total Quality		
Top management is more supportive of suggestions to improve the way things are done around here		
Total Quality is a greater priority at this site		
Visible progress has been made at improving things at the site		
People are encouraged more to say how things could be done better		
<u>Supervisory Reinforcement</u>		
My immediate boss:	.90	.85
Is genuinely committed to improving quality		
Encourages me to suggest improvements in the organization of my work		
Gives me feedback on my suggestions for improvement		
Gives me more recognition when I produce high quality work		
Sets an example of quality performance in his/her day to day activities		
Gives me enough information to enable me to do a quality job		
Ψ Item reversed scored ____ = name of organization		

TABLE 1 (continued)

Items	Study 1	Study 2
<u>Organizational Commitment</u>	.84	.81
I am quite proud to be able to tell people I work for ____		
I feel myself to be part of ____		
In my work area I like to feel I am making some effort, not just for myself but for ____ as well		
To know my own work had made a contribution to the good of ____ would please me		
Even if ____ was not doing too well financially, I would be reluctant to change to another employer		
The offer of a bit more money with another employer would not seriously make me think of changing my job		
 <u>Participation in TQM intervention Φ</u>	---	---
To what extent are you participating in ---		
 <u>Perceived benefit of TQM intervention Φ</u>	.85	----
Management and employees benefit equally from ---		
--- will benefit me in my job		
--- is not part of my job Ψ		
There is no benefit for me in --- Ψ		
--- is a management initiative to get people to do more work		
--- is no better or worse than previous initiatives		
 <u>Fairness of profit-sharing plan Ω</u>	----	.61
Profit sharing is of greater advantage to ____ than it is to employees Ψ		
Profit sharing does not fairly reward employees for the contribution to the profits of ____ Ψ		
There are many of my fellow workers who do not deserve to get a share of the profits Ψ		
Management can manipulate the profit figures to the disadvantage of employees Ψ		
 <u>Perceived ability to contribute Ω</u>	----	.71
It is hard to see how my work alone can affect ____'s profits Ψ		
I know that ____ will meet its profit target even if I don't work hard Ψ		
Under profit sharing, there is no point in me making more effort if other people don't do the same Ψ		
Profits are a bad basis for pay because they are affected by factors outside the control of the workforce Ψ		
The problem with profit sharing is that we never know how much we are going to make out of it Ψ		
Profit sharing is really too complicated to be an effective incentive Ψ		
Ψ Item reversed scored ____ = name of organization --- = name of TQM intervention		
Φ Study 1 Ω Study 2		

TABLE 2. Descriptive statistics and correlations for study 1

	Mean	S.D	1	2	3	4	5	6	7	8	9	10	11
1. Job tenure T ₁	8.85	(7.12)											
2. Age T ₁	46.96	(8.57)	.21										
3. Organizational tenure T ₁	16.51	(9.57)	.21	.35									
4. Δ of supervisor between time 1 and time 2 T ₂	0.54	(0.50)	.13	.20	.17								
5. Δ of job content between time 1 and time 2 T ₂	0.45	(0.50)	-.14	-.27	-.05	-.16							
6. Top management support T ₁	5.01	(1.16)	.11	-.03	-.02	-.02	.15						
7. Supervisory reinforcement T ₁	5.03	(1.06)	.16	.10	-.02	-.08	.07	.45					
8. Organizational commitment T ₁	5.50	(0.94)	.16	.15	-.06	.07	.08	.51	.44				
9. Continuous Improvement T ₁	5.53	(0.62)	.07	-.10	-.01	-.03	.09	.45	.41	.49			
10. Continuous Improvement T ₂	5.72	(0.73)	-.14	-.18	-.20	.00	.16	.34	.26	.36	.63		
11. Participation in TQM intervention T ₂	2.74	(1.30)	-.03	.04	-.13	-.19	.25	.26	.44	.35	.35	.26	
12. Perceived benefit of TQM intervention T ₂	4.34	(1.34)	-.05	-.04	-.12	-.06	.24	.43	.39	.44	.45	.43	.54

Correlations > .26 are statistically significant at p < .01 Correlations > .18 are statistically significant at p < .05

TABLE 3. Descriptive statistics and correlations for study 2

	Mean	S.D	1	2	3	4	5	6	7	8	9	10	11
1. Job tenure T₁	5.08	(3.86)											
2. Age T₁	39.32	(9.84)	.27										
3. Organizational tenure T₁	9.05	(6.04)	.38	.33									
4. Δ of supervisor between time 1 and time 2 T₂	0.31	(0.46)	-.11	-.04	-.03								
5. Δ of job content between time 1 and time 2 T₂	0.51	(0.50)	-.19	-.03	-.06	-.22							
6. Top management support T₁	3.68	(1.19)	-.07	.19	-.11	.15	-.06						
7. Supervisory reinforcement T₁	4.82	(1.13)	-.02	.06	.00	.05	-.15	.41					
8. Organizational commitment T₁	4.96	(0.99)	.02	.19	.10	.08	-.12	.45	.41				
9. Continuous Improvement T₁	5.71	(0.65)	-.06	.11	.17	.09	.06	.19	.32	.40			
10. Continuous Improvement T₂	5.85	(0.63)	-.14	.02	.08	.11	.14	.02	.15	.12	.63		
11. Perceived fairness of profit sharing plan T₂	3.71	(0.83)	-.10	-.04	.05	-.03	.05	.27	.20	.18	.23	.30	
12. Perceived ability to contribute to profitability T₂	4.12	(0.95)	.00	-.06	.05	.10	.03	.08	.10	.15	.39	.42	.36

Correlations > .27 are statistically significant at p< .01 Correlations > .19 are statistically significant at p <.05.

TABLE 4. Results of hierarchical regression analysis examining the effect of TQM and profit sharing on continuous improvement orientation

Predictor	TQM		Profit-Sharing	
	<u>Continuous Improvement Orientation</u>		<u>Continuous Improvement Orientation</u>	
	T ₁	T ₂	T ₁	T ₂
Step 1:				
Job tenure T ₁	-.16*	-.13	-.08	-.09
Age T ₁	-.05	-.07	.01	.06
Organizational Tenure T ₁	-.15*	-.12	.00	-.03
Δ of supervisor between time 1 and time 2 T ₂	.08	.11	.08	.09
Δ of Job content between time 1 and time 2 T ₂	.06	.00	.08	.07
Top management support T ₁	.04	.02	-.15*	-.21**
Supervisory reinforcement T ₁	.00	-.07	.04	.03
Organizational commitment T ₁	.06	.04	-.08	-.08
Continuous Improvement orientation T ₁	.57**	.50**	.66**	.57**
Step 2:				
Participation in TQM T ₂	---	.19*		
Perceived benefit of TQM T ₂	---	.13		
Step 2:				
Perceived fairness of profit-sharing T ₂			---	.17**
Perceived ability to contribute T ₂			---	.16*
F	11.08**	10.19	12.08**	12.29**
Change in F	11.08**	4.91**	12.08**	7.68**
Change in R ²	.48**	.05**	.45**	.06**
Adjusted R ²	.43	.47	.42	.47
N	118	118	141	141

** p ≤ .01 *p ≤ .05