Employee participation and assessment of an organizational change intervention: A three wave study of Total Quality Management

Dr. Jacqueline A-M. Coyle-Shapiro

Lecturer in Industrial Relations

Industrial Relations Department

The London School of Economics and Political Science

Houghton Street

London WC2A 2AE

Tel/Voice mail: 011-44-171-955-7035

E-mail: j.a.coyle-shapiro@lse.ac.uk

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ABSTRACT

Amidst the debates on Total Quality Management (TQM), empirical investigations of the process of change have been largely neglected. This article examines the process of change involved in implementing TQM, as well as employees' experience of participation, and evaluates the impact of employee participation in TQM on their commitment to the organization. The study was conducted in a UK manufacturing setting. The research design involved a survey of employees with three measurement occasions: 6 months prior to, and 9 months and 32 months after the introduction of TQM. Qualitative data were gathered during the implementation of TQM. The findings suggest that supervisory participative style is positively related to employee participation. The extent of employee participation is positively related to the assessment of the benefits of TQM. Furthermore, how employees assess the beneficial impact of TQM is more important in predicting subsequent participation in TQM than is their initial participation. However, employee participation in TQM was not found to be positively related to organizational commitment. There is evidence that supervisory resistance may have inhibited the successful development of the TQM process throughout the organization. The nature of the intervention and the process of change are important in understanding the basis of the resistance manifested by supervisors. In particular, the absence of supporting changes to reinforce a TQM philosophy and the reactive method adopted to overcome supervisory resistance during the change process are pivotal to explaining the limited development and consequences of the change effort.

INTRODUCTION

As a management innovation, Total Quality Management (TQM) has come under scrutiny from a number of fronts. First, the diversity of practices being implemented under the rubric of TQM has created ambiguity as to what TQM is and what it is not. Responding to this, Hackman and Wageman (1995) investigate the conceptual domain of TQM, and its distinctiveness from other multifaceted change interventions, as a way of clarifying the parameters of this recent managerial philosophy. The conclusion offered is that TQM, as set out by its founders, is a coherent philosophy with a distinctive set of interventions, but that the reality of organizational practices does not mirror that philosophy.

On the empirical front, a prominent strand of the research seeks to establish the effects of TQM on organizational performance. This avenue of investigation has yielded mixed results (Fisher, 1992; Gilbert, 1992; Mohrman, Tenkasi & Lawler, 1995; Wruck & Jensen, 1994), leading some authors to question the fruitfulness of this line of inquiry (Hackman and Wageman, 1995). Of particular concern is the potential effect of the conceptualization and operationalization of TQM on the results found. Despite this gloomy projection, the organizational effects of TQM are continuing to receive research attention (Reed and Lemak, 1998). A further arena of controversy is the consequences of TQM for employees, with two seemingly opposed perspectives. The prescriptive literature champions the TQM cause as a vehicle for employee empowerment and participation (e.g., McNealy, 1993), while the critical perspective puts forward a counter claim that ultimately TQM increases managerial control and leads to work intensification (Delbridge, Turnbull & Wilkinson, 1992; Kerfoot & Knights, 1995; McArdle, Rowlinson, Procter, Hassard & Forrester, 1995; Sewell & Wilkinson, 1992). The

apparent opposition of these two perspectives may be more an illusion than reality. Rees (1998) concludes that from an employee perspective, TQM may lead simultaneously to greater employee discretion and tightening of managerial control.

Amidst the attempts to promote or debunk TQM, empirical investigations of the process of change have been largely neglected. Only through an understanding of the dynamics of change can the outcomes of TQM be fully understood and its worth as an organizational philosophy assessed. The message of the largely prescriptive literature on the implementation of TQM is succinctly illustrated by Kaplan, Birmingham and Ferris (1998) who note "quality processes are expected to be implemented without incident because they are logical" (p. 289). The authors extend the theoretical framework of TQM by examining how political behavior may affect the implementation of TQM. In a similar vein, other theoretical contributions have focused on the complexities and problematic features of implementing TQM (Almaraz, 1994; Reger, Gustafson, DeMarie & Mullane, 1994). However, the conceptual mapping of the impediments to achieving successful TQM change is not matched by empirical studies investigating the introduction and development of the TQM process. Toward this latter end, this article examines the process of change involved in implementing TQM, as well as employees' experience of participation, and evaluates the impact of employee participation in TQM on their commitment to the organization using a longitudinal research design.

Process of change

The type of change associated with TQM is subject to debate, with some commentators viewing TQM as a distinct management paradigm associated with transformational change (cf.

Grant, Shani & Krishnan, 1994). Others challenge this view adopting a more cautious interpretation of TQM as tectonic change (Reger et al., 1994). In contrast, there is broad consensus regarding the process by which TQM is implemented. An underlying assumption of TQM is that quality is ultimately 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 implementation of TQM practices typically take place in cascading fashion, with each layer carrying the message to the next lower level of the organization" (Hackman & Wageman, 1995, p. 316). Inherent in this approach are implicit assumptions concerning how change occurs in organizations. First, change is expected to occur in a mechanical and rational manner, so that the influence of political behavior on the implementation process is not addressed (Kaplan et al., 1998). Thus, the cascading approach to change is treated as unproblematic. Change is assumed to occur in a straightforward manner throughout the managerial hierarchy culminating with first line supervisors involving employees in TQM. Second, the primary levers for change include training, education and recognition. Hackman and Wageman (1995) report that the majority of organizations utilize some form of training as part of their change efforts. The underlying assumption is that change occurs as a consequence of education and training, not only in terms of individual attitudes and behaviors but also acts as a stimulus for changes in organizational practices to support a TQM philosophy. However, the dependency of change at one level on the level above creates a fragility in this linking pin approach to change which, if broken, could present obstacles to a smooth and organization-wide change process. In addition, a reliance on training and education as the primary change lever may not be strong enough to elicit the desired change.

Given the cascading approach to change, the first line supervisor becomes responsible for involving employees in TQM. However, the role of the first line supervisor receives scant attention in the literature and, furthermore, the potential resisting force of this group is not addressed. The importance of the first line supervisor in the adoption of Quality Circles (QCs) has been highlighted by Steel and Lloyd (1988), who note that supervisors who encourage participation may feel more comfortable with QCs and hence more likely to choose the installation of QCs in their work area. In addition, Stewart and Manz (1997) argue that supervisory resistance may present a stumbling block to employee empowerment initiatives – "employee behavior is largely dependent on supervisor behavior, and supervisors frequently resist change and development efforts aimed at increasing employee empowerment" (Stewart & Manz, 1997, p188-189).

The psychological proximity of first line supervisors highlights their influence as the most salient representatives of management actions and policies (Lewin, 1943; Kozlowski & Doherty, 1989). Therefore, it is not surprising that the support of first line supervisors is crucial to effecting change at the level of employees (Klein, 1984). As TQM requires greater involvement from employees regarding quality and improvement issues, supervisors who operate along participative lines may be more likely to involve employees in a TQM intervention. These employees would be accustomed to having more say in decisions in their work area. Supervisors would have greater confidence in their employees' ability and a more positive view of employee desire and commitment to greater involvement in decision making. Therefore, some of the potentially inhibiting supervisory beliefs to involvement efforts would not thwart attempts to

elicit greater contributions from employees. Furthermore, supervisors attempting to create a participative work environment would also be more likely to send positive verbal and behavioral signals to employees regarding a change intervention designed to involve employees in activities previously carried out by specialist functions.

Participation in TQM

In the context of TQM, it is widely acknowledged that participation in an improvement structure represents a major vehicle for employees to contribute to continuous improvement (Lawler, 1994; Soin, 1992). Although the similarity with QCs is apparent, the difference lies in the integration of these activities into an organization-wide quality infrastructure. Furthermore, the activity of improvement teams is supported and reinforced by other principles and practices of TQM and as such employees play a more expansive role than participating in a QC type activity per se. Research on employee participation tends to assume that participation is viewed by participants as positive, rather than empirically testing this assumption (exceptions would include Graham & Verma, 1991; Steel, Mento, Dilla, Ovalle & Lloyd, 1985). Although the consequences of TQM for employees are keenly debated, what is clearly absent is a more dispassionate empirical test of employees' assessment of their participation in TQM. Therefore, it is important to empirically test the link between participation in TQM and evaluation of the benefits accruing from that participation.

In theory, employees can participate in TQM and withdraw their participation if, for example, their expectations are not met or if their views on the benefits of TQM are not positive. Verma and McKersie (1987) argue that if employees see involvement as beneficial, they will be

more likely to join and support such programs. Developing this further, one could argue that if employees see TQM as beneficial, they may be more likely to continue to participate and if the converse holds true, they may be more likely to withdraw. Therefore, initial participation in TQM may not automatically translate into subsequent participation. What may be of greater importance is how employees assess their initial experience of TQM.

Outcomes of TQM

One approach to evaluating the impact of TQM would be to examine its effects on its core principles of teamwork, continuous improvement and customer satisfaction. A second approach would be to examine the effects of TQM on work related outcomes that are not specifically outlined in the TQM framework but that have been used to evaluate other interventions falling in the domain of quality improvement (Steel & Jennings, 1992). Specifically, organizational commitment has been used as one criterion to evaluate the effects of QCs and semi-autonomous work groups (Bruning & Liverpool, 1993; Cordery, Mueller & Smith, 1991; Elloy & Randolph, 1997; Steel, Jennings & Lindsey, 1990; Wall, Kemp, Jackson & Clegg, 1986) and has been linked to discretionary performance such as organizational citizenship behavior (Coyle-Shapiro, Kessler & Purcell, 1999; Moorman, Niehoff & Organ, 1993; Organ and Ryan, 1995). Although TQM does not set out to enhance organizational commitment directly, the implementation of TQM elicits greater involvement in organizational activities. Specifically, employees have the opportunity to actively engage in continuous improvement activities. In addition, they are likely to be the recipients of greater information regarding organizational performance and its consequences for organizational activities. Therefore,

through increased communication and consultation, employees may feel a greater identification with, involvement in and loyalty to the organization. Based on the above discussion, the following hypotheses are proposed:

Hypothesis 1. There will be a positive relationship between employees' perception of the participative style of their supervisor prior to TQM and their participation in TQM.

Hypothesis 2a. There will be a positive relationship between employees' participation in TQM and their assessment of the benefits of TQM.

Hypothesis 2b. Employee assessment of the benefits of TQM will be more important in predicting subsequent participation in TQM than is employees' initial participation.

Hypothesis 3. There will be a positive relationship between employees' participation in TQM and their commitment to the organization.

METHODOLOGY

Institutional setting

This study was conducted at one site of a UK based multinational supplier of engineering and electrical components employing approximately 600 people. In the late 1980s, the site introduced a cell based manufacturing structure with associated job losses and a flattening of the managerial hierarchy. In conjunction, changes were introduced to the terms and conditions of employment, the pay grading structure was simplified and harmonization of methods of payment and pension scheme occurred. Building upon these changes, in 1990 the site launched Continuous Improvement Groups (CIGs) as a vehicle for employees to contribute to continuous

improvement on a voluntary basis. Overall, employee participation in these groups was sporadic with some groups disbanding while others started. Against what was perceived by management as the failure of the grass roots approach to improvements, the site embarked upon TQM. This transition from a grass roots improvement structure to TQM is not an uncommon feature in the pursuance of continuous improvement (Hill, 1991).

The TQM intervention

The senior management team viewed the TQM intervention as a necessary counterbalance to the previous changes that focused on the visible reorganization of work methods, systems and structure. Thus, the objective was to change the culture of the site towards continuous improvement and this was to be achieved by the "participative involvement" of everyone.

With the assistance of a Total Quality proponent from within the organization and a group of outside consultants, a change program focusing on education and training was designed. The emphasis on training and education as the main driver for change is consistent with the TQM philosophy espoused by its founders (Deming, 1986; Ishikawa, 1985; Juran, 1989) and with the practice of implementing TQM (Hackman & Wageman, 1995; Hunter & Beaumont, 1993). The philosophy behind the TQM intervention was not too far removed from Xerox's "leadership through Quality Process" which "aimed at fundamentally changing the way Xerox people work and manage so they can continually improve the way they meet the requirements of their customers" (Ross, 1994, p53). The initial targets for change were those in the management

hierarchy and the prerequisite of change at this level for TQM to succeed is consistent with the TQM literature (Hill, 1991; Hackman & Wageman, 1995). It was assumed that as a consequence of the training and education program, a series of changes would occur throughout the site. In attempting to create an involvement culture, the training and education covered issues such as Theory X and Y, leadership styles, empowerment, leading and managing groups. In addition, the tools and techniques of TQM were an integral part of the training.

The starting point was the training and education program, which the outside consultants ran off- site for the executive team. Subsequently, a group of internally selected facilitators were taken off-site and undertook the program as well as a facilitation workshop. It was the responsibility of this group to cascade the training throughout the managerial hierarchy and to facilitate and support the subsequent cascade from managers to employees. A steering committee was set up consisting of an equal number of facilitators and executive managers to oversee the TQM process. Supervisors and managers, having completed the program, were held responsible for training their subordinates. It was assumed that after completing the program, managers and supervisors would actively cascade the training to their employees and set up improvement teams. In practice, this approach to change led to an uneven involvement of employees in TQM activities as a consequence of the recalcitrance of some supervisors.

In response to supervisory reluctance to support the TQM intervention, the steering committee requested that each manager/supervisor formally present a regular progress report on the implementation of TQM activities. As a method of inducing change, this was unsuccessful. Consequently, in the autumn of 1993, in view of the pockets of continued resistance, it was

decided that progress in the intervention was to become an integral part of each manager's annual performance objectives and thus part of their performance appraisal. Despite the attempts of one trade union to bring the intervention into the annual pay negotiations, in keeping with the traditional TQM philosophy, there was no financial incentive offered to employees for their participation. After some debate, the steering committee decided against compulsory participation at employee levels. However, all new employees, would be required as part of their job to participate in the intervention. During 1994, the site took over the manufacturing of a new product from a different site and consequently hired a new group of employees who were informed that their participation in TQM was integral to their employment at the site.

Research design

The research methodology employed consisted of a 'before and after' study of the TQM intervention with three measurement occasions; 6 months prior to the commencement of the intervention; 9 months and 32 months after the start of the intervention. Qualitative data were gathered during the intervening period regarding reactions to the introduction of TQM as well as monitoring the progress of implementation. Prior to the administration of the first round questionnaire, trade union representatives were informed of the research, given the opportunity to raise questions and/or concerns and were asked to support the research. Subsequently, as part of a quarterly communications day whereby all employees in groups are given a forty minute presentation on relevant issues to the site, I introduced myself to the entire workforce, stated my independence from management at the site and the overall organization. In addition, employees

were informed that the results of the survey would be communicated to them. All these steps were taken to facilitate continued co-operation.

A random sample of 40% of employees stratified by work area was asked to participate in the research. Participants were informed that they would be allocated a code number so that they could be identified and tracked over time. Most of the employees completed the questionnaire on a one-to-one basis away from their work area during work time. The first phase of data collection took place in May/June 1992, six months prior to the commencement of the TQM intervention, at which stage none of the respondents were aware of the pending initiative. Therefore, the baseline questionnaire was not influenced by individuals' knowledge of the forthcoming intervention. The same administration procedure was adopted for the post intervention measurements.

At time 1, 186 of the 200 employees asked to complete the questionnaire did so, yielding a response rate of 93%. The employee participant sample was reduced to 166 at time 2 and 118 at time 3, due primarily to employees leaving the site in the intervening period. Consequently, the sample used in the analysis was confined to employees who completed questionnaires on all three measurement occasions. At time 3, the participant group was 95% male, with a mean age of 48.0 years, a mean organizational tenure of 18.0 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%), with the remainder of the sample in administrative positions.

Measures and analysis procedures

In assessing employee participation in an organizational intervention, a common approach is to treat employee participation as a dichotomous variable with two categories, participants and non- participants. This study used an alternative method, whereby employees were asked to indicate the extent to which they were participating in the activities of the intervention along a five-point Likert scale ranging from “not at all” to “a very great extent” (coded from 1 to 5). This method permitted a more accurate representation of the degree of employee participation in the intervention. As a checking measure, when employees responded to this question, they were subsequently asked to elaborate on why they responded in a particular manner. Translating reported extent of participation into more concrete behaviors, the following classification was used. Employees whose response was either “not at all” or “not much” (coded as 1 and 2 respectively) were aware of the intervention and had received communication about the intervention when it was launched. These employees had not received training and effectively were not (as yet) participating in the intervention. In contrast, individuals who responded in the “to a great extent” and “to a very great extent” (coded 4 and 5 respectively) categories had received training by their supervisor and were participating in teams with the aim of making improvements in their work area. The remaining employees who responded in the “to some extent” (coded as 3) category were not participating in teams. However, they were trained in the principles of TQM by their supervisor and participating at a more informal (unstructured) level, such as monitoring internal customer requirements or instigating corrective action based on problems identified by another improvement team.

A sample of the remaining scale items, the number of items in the scale and Cronbach's alpha coefficient for the scales are shown in Table 1. Perceived benefit is a four item scale that taps respondents' assessment of the extent to which the intervention is viewed as beneficial. Organizational commitment was adapted from Cook and Wall (1980), assessing an individual's identification, involvement and loyalty toward the organization. Supervisory participative style was adapted from Seashore, Lawler, Mirvis and Cammann (1982) and includes seven items which taps respondents' perception of the extent to which their immediate boss is participative and supportive in his or her behavior. Perceived management commitment to quality is a five item scale that taps respondents' perception of the extent to which managers set an example of quality behavior in their own work and the extent to which they facilitate employees doing quality work. Improved support for TQM assesses the degree to which employees felt there had been an improvement in the support for total quality. This five item measure taps the degree to which top management is perceived to be more committed to total quality, more supportive of suggestions for improvement and giving greater priority to total quality at the site.

INSERT TABLE 1 ABOUT HERE

Finally, respondents were asked to give details on their age, gender, organizational tenure, and job tenure. Respondents were asked at time 2 and time 3 whether they had experienced a change in supervisor. The hypotheses were tested using hierarchical regressions. In each equation, the control variables were entered in step 1, as these variables could potentially affect both the independent variables and the dependent variables. For example, perceived management commitment to quality may have an effect on employee participation in TQM and

organizational commitment. Subsequently, the independent variable of interest is entered into the equation.

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RESULTS

Descriptive statistics and correlation coefficients of the main variables are reported in Table 2. Hypothesis 1 predicted that perceived supervisor participative style would be positively related to employee participation in TQM. Table 3 presents the results. In the first step, participation in TQM (T2) was regressed on several control variables: age, gender, job tenure, organizational tenure, change of supervisor, organizational commitment and perceived management commitment to quality. When supervisor participative style (T1) was entered in the equation, it produced a significant beta coefficient (β=.24, $p<.01$), indicating that it explained unique variance in participation that was not accounted for by the other variables, which supports hypothesis 1. When improved support for TQM (T2) was entered in a subsequent step, it produced a significant beta coefficient (β=.34, $p<.01$) and reduced the effect of supervisory participative style (T1). However, the effect of improved support is likely to be inflated as it was measured at time 2, in contrast to the measurement of supervisory participative style at time 1. An additional regression equation (not reported here) establishes a significant positive relationship between supervisory participative style (T1) (β=.31, $p<.01$) and improved support for TQM (T2). This suggests that the participative style of the supervisor is important in shaping employee perceptions of the degree of support for TQM in the organization. Taken together, these results indicate that the behavior of the first line supervisor plays an important yet overlooked role in eliciting employee participation in TQM.

INSERT TABLE 2 ABOUT HERE

Hypothesis 2a posited that participation in TQM would be positively related to perceived benefit of TQM. To test this hypothesis, the control variables and supervisory participative style were entered in the equation initially and participation in TQM entered in a subsequent step. The results shown in Table 3 reveal that participation in TQM produced a significant beta coefficient (β=.40, $p<.01$) explaining an additional 15% variance in perceived benefit of TQM, supporting hypothesis 2a.

INSERT TABLE 3 ABOUT HERE

Hypothesis 2b predicted that employees' assessment of the benefits accruing from TQM (T2) would be more important than employees' initial participation (T2) in explaining subsequent participation in TQM (T3). To test this hypothesis, two regressions were conducted. The control variables were entered in step 1, participation in TQM (T2) was entered in step 2 and perceived benefit of TQM (T2) in step 3. The second regression reversed the entry of the variables, with perceived benefit of TQM entered in step 2 and participation in TQM in step 3. Reversing the order in which the variables are entered into the equation permits an examination of the relative importance of each of the predictors. Thus, if one of the predictors has a significant beta coefficient and explains unique variance in the dependent variable regardless of the order in which it is entered in the equation, and at the same time, the remaining predictor is non- significant, this suggests that one predictor is more important in predicting the dependent variable. If, however, each predictor has a significant beta coefficient and explains unique

variance only when it is entered in the equation prior to the remaining predictor, this would indicate that neither predictor is more important than the other in predicting the dependent variable. As Table 4 shows, when participation in TQM (T2) is entered in step 2 or in step 3, it does not produce a significant beta coefficient nor does it explain unique variance in participation in TQM (T3). Perceived benefit of TQM (T2) explains unique variance in participation in TQM (T3) irrespective of when it is entered in the equation and produces a significant beta coefficient ($\beta = .23$, $p < .05$). These results suggest that perceived benefit of TQM (T2) is more important than participation in TQM (T2) in explaining subsequent participation in TQM (T3), thus supporting hypothesis 2b.

INSERT TABLE 4 ABOUT HERE

Hypothesis 3 posited that participation in TQM would be positively related to organizational commitment. As the effects of employee participation in TQM may take time to materialize, this hypothesis was tested twice using different measurement occasions. In the first regression, organizational commitment (T2) was regressed on the control variables (including organizational commitment at time 1) in step 1 and participation in TQM (T2) in step 2. The same procedure was followed regressing organizational commitment (T3) on the control variables (including organizational commitment at time 2) in step 1 and participation in TQM (T3) in step 2. As table 5 shows, irrespective of the time period examined, participation in TQM does not explain unique variance in organizational commitment and does not produce a significant beta coefficient at either time period. Thus, hypothesis 3 is not supported.

INSERT TABLE 5 ABOUT HERE

DISCUSSION

The results of this study help address a noticeable gap in the literature on TQM and organizational change. Specifically, the data suggest that supervisors have a positive role to play in getting employees involved in TQM. The extent of employee involvement is positively related to the assessment of benefits of TQM. Furthermore, how employees assess the beneficial impact of TQM is more important in predicting subsequent participation in TQM than is their initial participation. However, employee participation was not found to enhance commitment toward the organization.

The finding that supervisory behavior is positively related to employee participation in TQM is not surprising and is consistent with the more general research on employee participation and empowerment (Manz, Keating & Donnellon, 1990; Stewart & Manz, 1997; Verespej, 1990). Yet, within the TQM literature, the role of first line supervisors receives scant attention. This may pose particular difficulties in view of the cascading nature of the change process. While this type of change process has the potential to gather momentum in the managerial ranks prior to reaching employees, in practice, the approach contains an inherent fragility that may thwart the spread of change. In this study, employee involvement in TQM was unproblematic where supervisors were participative prior to the introduction of TQM. However, the training and education as part of the TQM change process did little to change the behavior of supervisors operating in a traditional 'direct and control' manner.

The effect of participation on perceived benefit of the intervention is broadly consistent with prior research (Graham & Verma, 1991) and supports the view that TQM can provide benefit to employees. Graham and Verma (1991) found in their study of employee participation programs (EPPs) that the closer employees are to becoming members, the more positive their attitudes toward EPPs. In this study, the findings go further to suggest that the greater employee participation in TQM, the more likely the intervention will be judged to be beneficial. Although this finding suggests that the greater employee participation in TQM, the greater the perceived benefit of TQM, it would be naïve to conclude that the consequences of TQM for employees are entirely beneficial. Clearly, there are trade-offs and, as Rees (1998) concludes, TQM may simultaneously lead to greater work effort and enhanced job satisfaction.

A commonly held assumption in empirical studies of voluntary employee participation programs is that employees are likely to withdraw their participation if they become disillusioned with the program as a result of unmet expectations. This study finds empirical support for the assumption that employees who do not see a change intervention as beneficial in the early stages of implementation are unlikely to participate subsequently. Therefore, when employees exercise choice in participating in a change intervention, the degree to which they assess it as beneficial may be pivotal to their decision to participate.

The enhancement of organizational commitment did not occur as a consequence of employee participation in TQM. In view of the specific limits of employee involvement under TQM, this type of narrowly focused participation may limit the extent to which enhanced commitment could be reasonably expected to occur. In a similar vein, Steel and Jennings (1992)

conclude that the majority of studies investigating the effects of QC participation found little or no effect on organizational commitment. Guest and Peccei (1994) raise the possibility that organizational commitment among an experienced workforce may be quite stable and hence difficult to enhance. However, the appropriateness of the intervention in terms of its potential to enhance commitment may be equally important. Since employee involvement initiatives take a variety of forms, caution needs to be exercised in postulating a link between employee involvement generally and organizational commitment. It may be the case that TQM per se represents a weak intervention, which could be strengthened by the introduction of reinforcing changes thus potentially increasing its likelihood of enhancing organizational commitment. This would be consistent with a systemic view of the change involved in implementing TQM.

In unraveling the potential inhibiting factors to the development of TQM, amongst others, a crucial factor may be supervisory resistance (Coyle-Shapiro, 1999a). In pursuing the underlying basis to the resistance manifested by supervisors, it is necessary to consider both the content of the change intervention as well as the process by which it was introduced. An exclusive reliance on education and training as a way of effecting change may be exposed to the problem of transferring and integrating the principles of the training into organizational activities. This situation may be accentuated by an absence of other changes introduced to reinforce the principles of TQM. The argument that successful organizational change requires a systemic approach involving multifaceted change interventions has received considerable support (Nadler & Tushman, 1981; Robertson, Roberts & Porras, 1993). In addition, as TQM requires culture change, it may be necessary to use multiple levers to achieve change. A case in point is gain sharing or profit sharing programs. Researchers examining change from a justice

perspective argue that employees need to share in the financial benefits accruing from TQM if TQM is to become ingrained into the functioning of the organization. (Cobb, Wooten & Folger, 1995). In line with this, recent empirical evidence finds a positive relationship between profit sharing and employees' orientation to continuous improvement (Coyle-Shapiro, 1999b). If this holds true, a form of team based reward system may have facilitated the introduction and institutionalization of TQM.

A related contributing factor points to the method by which supervisory resistance was addressed. In this case, the approach adopted was coercively driven and reactive rather than a proactive approach integral to the change process. There was no attempt to incorporate a specific change effort aimed at minimizing potential resistance from supervisors. For example, Stewart and Manz (1997) recommend that Schein's (1987) three-step process be used as a specific method for overcoming supervisor resistance to employee empowerment. This would involve creating dissatisfaction with current supervisory behavior, helping supervisors perceive a gap between their current behavior and optimal behavior and, finally, providing a psychologically safe environment to facilitate behavioral change. Alternatively, addressing the concerns of supervisors through an OD intervention consisting of a 'communications group' could have been adopted as part of the change process (Aldefer, 1977). In providing a legitimate and overt process to address these concerns, the 'unfreezing' of supervisory behavior may have been facilitated.

In view of the fragility in the cascading approach to change, those championing TQM within organizations need to take steps to address potential sources of resistance that may thwart

the spread of change. A corollary change intervention addressing the concerns of supervisors in conjunction with supporting changes may be necessary if TQM is to gain a foothold within organizations. This would help create a momentum for change within the managerial hierarchy prior to involving employees in TQM. Second, the findings strongly point to the careful management of participation so as to ensure employees view TQM as worthwhile and beneficial. In practice, this would involve taking steps to ensure that employees progressed quickly through the TQM training and set up improvement teams, increasing the likelihood that they begin to see the benefit of TQM.

As with the majority of studies, the design of the current study is subject to limitations. The issue of generalizability of the findings is one limitation, particularly in view of the potentially different practices implemented as part of TQM. A second issue is the small sample size, due to the mortality effects inherent in conducting longitudinal studies. Despite these limitations, a notable strength of the study is that the TQM intervention was not contaminated with a host of other changes designed to support a TQM culture. By the same token, the absence of these supporting changes may help explain the findings.

This study directs attention to the underdeveloped theory of change underlying the TQM framework. In order to address this, the empirical evidence from the mainstream organizational change studies needs to be explicitly incorporated, thereby increasing the chances that TQM will deliver on its promises. In particular, as TQM involves different interest groups relinquishing some authority, strategies for dealing with potential resisting forces need to be firmly integrated as part of the change process. Given that individuals resist change for a number of reasons, a

multifaceted change intervention may increase the likelihood of achieving the requisite change. Whether this takes TQM outside its original conceptual domain may be a sacrifice worth taking.

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TABLE 1
Measurement of variables

Variable name and sample survey items	No. of items	Alpha
<u>Supervisor participative style</u> The person I normally report to: Encourages people to participate in important decisions Encourages people to speak up when they disagree with a decision Allows people to use their own judgement in solving problems Is successful in getting people to work together Supports me in getting my job done	7	.84
<u>Organizational commitment</u> I am quite proud to tell people I work for [name of organization] I feel myself to be part of [name of organization] To know that my own work had made a contribution to the good of [name of organization] would please me Even if [name of organization] was not doing too well financially, I would be reluctant to change to another employer	6	.78
<u>Perceived management commitment to quality</u> Management is genuinely committed to improving quality Management sets examples of quality performance in their daily activities Management has attempted to involve everyone in continuous improvement Management provides support for quality improvements throughout the organization	5	.84

<u>Improved support for TQM</u> Compared to a year ago: Top management is more committed to Total Quality Visible progress has been made in improving things at this site 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 People are encouraged more to say how they think things could be done better	5	.79
<u>Perceived benefit of TQM</u> There is no benefit for me in [name of TQM intervention] [Name of intervention] is a management initiative to get people to do more work [R]	4	.75

[R] reversed scored

TABLE 2. Descriptive Statistics and Correlations for Main Study Variables

	Mean	S.D	1	2	3	4	5	6	7	8
1. Organizational commitment T1	5.39	0.90								
2. Sup. participative style T1	4.98	1.12	.16							
3. Mgt. Commitment to quality T1	5.07	1.09	.48	.48						
4. Improved support for TQM T2	5.03	1.06	.32	.41	.40					
5. Participation in TQM T1-2	2.56	1.10	.08	.26	.14	.36				
6. Perceived benefit of intervention T2	4.16	1.26	.22	.19	.23	.35	.40			
7. Organizational commitment T2	5.50	0.94	.69	.33	.47	.51	.22	.28		
8. Organizational commitment T3	5.46	0.97	.56	.27	.29	.38	.14	.20	.71	
9. Participation in TQM T2-3	2.74	1.25	.27	.24	.18	.26	.24	.28	.35	.37

[a] Correlations greater than .17 are significant at $p < .05$. Correlations greater than .23 are significant at $p < .01$.

TABLE 3. Hierarchical regressions predicting participation in and perceived benefit of TQM at Time 2 [α]

Independent variables	Participation in TQM (Time 2)		Independent variables	Perceived benefit of TQM (Time 2)
Step 1			Step 1	
Age	-.02 ns	.00 ns	Age	.00 ns
Gender	.00 ns	-.03 ns	Gender	.03 ns
Job tenure	.08 ns	.11 ns	Job tenure	-.14 ns
Organizational tenure	-.09 ns	-.12 ns	Organizational tenure	.06 ns
Change of supervisor	-.14 ns	-.11 ns	Change of supervisor	.10 ns
Organizational commitment	.02 ns	-.05 ns	Organizational commitment	.18 ns
Perceived management commitment to quality	.02 ns	-.05 ns	Perceived management commitment to quality	.10 ns
			Supervisor participative style	.02 ns
Change in R^2 for step	.00 ns	.06 ns / F Δ 0.99	Change in R^2 for step	.09 ns / FΔ1.36
Step 2			Step 2	
Supervisory participative style	.24**	.13 ns	Participation in TQM T2	.40**
Change in R^2 for step	.04* / F Δ 5.08		Change in R^2 for step	.15** / F Δ 20.72
Step 3				
Improved support for TQM T2		.34**		
Change in R^2 for step		.08** / F Δ 10.84		
Overall Adjusted R^2	.04	.12	Overall Adjusted R^2	.18
(N=116)			(N=116)	

Significant F and beta coefficient * p<.05 ** p< .01 level [α] Entries beside main variables are standardized regression coefficients

Table 4. Hierarchical regressions examining the relative effect of participation in TQM at Time 2 and perceived benefit of TQM at Time 2 on participation in TQM at Time 3 [α]

Independent variables	Participation in TQM (Time 3)	Independent variables	Participation in TQM (Time 3)
Step 1			
Age	.11 ns		
Gender	-.08 ns		
Job tenure	-.02 ns		
Organizational tenure	-.13 ns		
Change of supervisor	-.21*		
Supervisor participative style	.15 ns		
Change in R^2 for step	.11* / F Δ 2.31		
Step 2		Step 2	
Participation in TQM T2	.08 ns	Perceived benefit of TQM T2	.23*
Change in R^2 for step	.02 ns / F Δ 3.36	Change in R^2 for step	.06** / F Δ 8.36
Step 3		Step 3	
Perceived benefit of TQM T2	.23*	Participation in TQM T2	.08 ns
Change in R^2 for step	.04* / F Δ 5.55	Change in R^2 for step	.00 ns / F Δ 0.71
Overall Adjusted R^2	.12	Overall Adjusted R^2	.12
(N=116)		(N=116)	

Significant F and beta coefficient * p<.05 ** p< .01 level [α] Entries beside main variables are standardized regression coefficients

Table 5. Hierarchical regressions examining the effect of participation in TQM on organizational commitment at Time 2 and Time 3 [α]

Independent variables	Organizational commitment (Time 2)	Organizational commitment (Time 3)
Step 1		
Age	.06 ns	.00 ns
Gender	.00 ns	.07 ns
Job tenure	.12 ns	.03 ns
Organizational tenure	-.05 ns	.05 ns
Change of supervisor	-.01 ns	.00 ns
Organizational commitment	.53**	.61**
Perceived management commitment to quality	.02 ns	.01 ns
Supervisor participative style	.09 ns	-.10 ns
Improved support for TQM	.27**	.22**
Change in R^2 for step	.60** / F Δ 18.29	.59** / F Δ 17.22
Step 2		
Participation in TQM	.04 ns	.13 ns
Change in R^2 for step	.00 ns / F Δ 0.29	.01 ns / F Δ 3.41
Overall Adjusted R^2	.58	.55
(N=116)		

Significant F and beta coefficient * p<.05 ** p< .01 level [α] Entries beside main variables are standardized regression coefficients