THE CONTRIBUTIONS OF TOTAL QUALITY MANAGEMENT TO A THEORY OF WORK PERFORMANCE

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Based on recently proposed principles of total quality management (TQM), a system-focused perspective is considered here with regard to the determinants of work performance. The system is seen as an important source of variance affecting performance both indirectly and interactively. Moreover, the individual is seen as potentially affecting the system. Hierarchical level and autonomy are considered as key moderating variables in understanding individual versus system influences on work performance. Implications are discussed with regard to performance management processes in organizations.

Human resources management (HRM) theory and practice have for many years focused on individual differences in the management of performance in organizations. Indeed, researchers in areas such as selection, performance appraisal, and compensation have been concerned mainly with decision making based on the assessment of individual differences. An underlying assumption has been that individuals matter in determining the variation in work performance. Proponents of total quality management (TQM) have not disputed this assumption. However, they have questioned the predominant focus on individuals and, instead, have chosen to emphasize aspects of work systems as being relevant to work performance (Deming, 1986, 1993; Juran, 1989; Walton, 1986). The implications of a system-oriented perspective are enormous with regard to the theory, research, and practices of HRM.

Unfortunately, a clear theoretical framework presently does not exist to show the connections between aspects of systems and the work performance of individuals within those systems. The purpose of this article is first, to provide such a framework and second, to use this framework to generate research propositions that focus on the interplay of person and system factors. In doing so, an attempt is made to incorporate principles recently put forth in the TQM literature.

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Companies have been concerned with the quality of their products and their quality-management processes for years. However, only since the mid-1980s have organizations paid serious attention to the implementation of TQM. TQM has its origins in manufacturing, where statistical quality-control measures were first used to reduce product defects. However, TQM has spread to include applications in service industries and government (Brown, 1991; Cohen & Brand, 1993).

TQM has evolved as an approach to quality that it is now characterized in terms of an integrated, systematic, organizationwide strategy for improving product and service quality (Dean & Evans, 1994; Tenner & DeToro, 1992). TQM is neither a program nor a specific tool or technique. Rather, TQM may be viewed as a shift in both thinking and organizational culture (Sashkin & Kiser, 1993).

A review of the literature reveals that TQM encompasses a vast spectrum of topics and perspectives. A number of individuals associated with the TQM movement have been highly critical of Western management practices. Among these, perhaps the one most strident in his claims has been W. Edwards Deming. Deming (1986) summarized his management philosophy around 14 principles he offered as requirements to remain competitive in providing products and services. These include management commitment and leadership, statistical process control, removal of barriers to employee participation and control of their own quality, and continuous improvement of processes. Juran (1964, 1989) emphasized planning and product design, quality audits, and orienting quality management toward both suppliers and customers. Crosby (1979, 1984) focused on such organizational factors as cultural change, training, leadership, and the ongoing calculation of quality costs. Important extensions to the TQM framework have included the development of customer-based specifications in the design of a product or process (Taguchi & Clausing, 1990) and benchmarking or the measuring of products/services and processes against those of organizations recognized as leaders (Camp, 1989). Taken together, the following elements appear to be key to TQM:

1. Upper management commitment to place quality as a top priority.
2. A broad definition of quality as meeting customers' expectations at the least cost, which encompasses all phases of the design, production, and delivery of a product/service.
3. The institution of leadership practices oriented toward TQM values and vision.
4. The development of a quality culture.
5. Involvement and empowerment of all organizational members in cooperative efforts to achieve quality improvements.
6. An orientation toward managing-by-facts, including the prolific use of scientific and problem-solving techniques such as statistical process control.
7. The commitment continually to improve employees' capabilities and work processes through training and benchmarking, respectively.
8. Attempts to get external suppliers and customers involved in TQM efforts.

**The TQM Perspective of Work Performance**

Among the TQM proponents, the work of Deming (1982, 1986) is perhaps most relevant to understanding connections between total quality and work performance and the management of such performance. Specifically, Deming built a case that the central problem of management is an incorrect understanding of variation in performance phenomena, including the work performance of employees. His lament focused on the confusion between special causes and common causes of variation. Special causes are sporadic in nature; with regard to work performance, they can include factors unique to the individual worker. These causes were seen by Deming as being separate from the system in which the individual operates, not commonly affecting other workers. An example might be that a worker shows truly extraordinary effort significantly beyond the efforts shown by other workers. Conversely, another worker might show virtually no effort, which places the performance of that individual significantly below the performance of the others.

However, the sporadic nature of special causes is evident in Deming's proposal that relatively little of the variance in work performance is due to such causes. In contrast, he proposed that the vast majority of variance is due to common causes which, according to Deming, are system based. Furthermore, managers are responsible for correcting system-based causes of performance. "No amount of care or skill in workmanship can overcome fundamental faults in the system" (Deming, 1986: 315). TQM proponents have been quick to criticize performance appraisals that are based on the assumption that the employee is mainly in control of his or her performance (Deming, 1986; Scherkenbach, 1985; Scholtes, 1987; Walton, 1986).

It is not surprising that Deming would attribute the lion's share of variation in work performance to common or system causes. Such reasoning follows from statistical process control and probability theories that treat data within plus or minus three standard deviations from a mean as not being statistically different from that mean. Thus, Deming would claim that a mean performance level simply reflects a system's overall capability. Variation around that performance level within plus or minus three standard deviations is system based and random in nature.

Deming neither makes clear the exact nature of the system construct nor the manner in which it is related to performance outcomes. For example, if most of the variation in work performance is due to system variables, are the relationships direct? Does the system affect performance indirectly by first affecting aspects of individuals? Are there interaction effects between the system and the individual in the determina-
tion of performance? Moreover, potential boundary conditions are alluded to by Deming (1986) but not made very clear. An example is hierarchical or management level. Deming suggested that workers work in a system, the creation and perpetuation of which are the responsibilities of management. It would logically follow that for workers, most performance variation might be due to system factors beyond their control. The situation is not as clear for managers. If managers are responsible for system development, is it logical to minimize the contribution of their individual abilities and effort in the determination of their own work performance? Moreover, individual abilities and effort may be similarly relevant for workers whose jobs allow for a high degree of autonomy. These issues are addressed in a later section as a system-focused framework of work performance is developed and illustrated by considering TQM contexts.

Dobbins, Cardy, and Carson (1991) recently considered the implications of TQM system-based approaches on practices and research issues in HRM. In essence, they contrasted such approaches with the more traditional and still dominant emphasis in HRM on the person orientation. One conclusion reached by Dobbins and his colleagues is that HRM research would greatly benefit from the development of a theory of work performance that carefully delineates the role of system factors. Such a theory would logically benefit by including concepts being generated by TQM proponents.

A system-focused approach to the modeling of work performance may be especially opportune at this point in time. Prior research attempting to predict work performance behavior has been criticized for being too narrow in focus and involving too few antecedent variables (Blumberg & Pringle, 1982; Griffin, Welsh, & Moorhead, 1981; Staw, 1977; Waldman & Spangler, 1989). That is, there has been a tendency on the part of researchers to use a single theoretical area such as motivation (see Campbell & Pritchard, 1976) as the basis for modeling work performance. However, it may be more beneficial for theorists and researchers to work from an integrative perspective involving multiple theories (Colarelli, Dean, & Konstans, 1987; Staw, 1984; Waldman & Spangler, 1989).

As stated by Blumberg and Pringle (1982: 561), "unfortunately, the focus has been on a few trees, and there has been little or no attempt to show how these trees form the interrelated patterns that are the forest." Blumberg and Pringle (1982) attempted to integrate various perspectives and models of work performance determinants. A primary focus of the Blumberg and Pringle model was to explicitly include opportunity factors, or environmental influences beyond an individual's control, as determinants of performance. Indeed, they were critical of prior approaches to the modeling of work performance that tended to treat opportunity factors as spurious in nature or unnecessary in terms of operationalization and measurement in research (Cummings & Schwab, 1973; Dachler & Mobley, 1973; Porter & Lawler, 1968). That is, early models of work performance
tended to focus on individual ability and motivation determinants, and
opportunity factors were treated as somewhat extraneous. Even more re-
cently, Campbell (1990: 707), in attempting to model work performance,
omitted opportunity factors and simply assumed that they could "be held
constant (experimentally, statistically, or judgmentally)." Despite the fre-
quent lack of direct theoretical attention to opportunity factors, research
has shown how variables outside of the individual can be linked to work
performance. Generally concentrating on phenomena in an individual's
immediate work environment, researchers have included the role of lead-
ership processes (Bass, 1985; Yukl, 1989), job design (Hackman & Oldham,
1980), person/system fit (Chatman, 1989; O'Reilly, Chatman, & Caldwell,
1991; Schneider, 1985), and situational constraints (Johns, 1991; Peters &
O'Connor, 1980). More will be said about each of these sources of influ-
ence in following sections.

When conceptualizing the determinants of work performance, it may
be especially beneficial to include concepts and ideas being put forth by
TQM proponents such as Deming and Juran. To do so might lead to the
type of transformational effect in theory building described by Bacharach
(1989). That is, TQM may force the reevaluation and reconceptualization
of existing models of work performance. Whetten (1989) suggested that
such a transformational effect results from borrowing perspectives from
an area or line of thinking substantially disparate from traditional ration-
ales and theories. With regard to work performance and its management,
traditional approaches have been mainly psychological in nature with an
emphasis on the individual. As noted previously, TQM is predicated on
statistical concepts of variation, and its proponents approach such issues
as work performance by targeting system-based causes of variation
(Deming, 1986; Juran, 1989; Sashkin & Kiser, 1993).

WORK PERFORMANCE AND SYSTEMS

Work Performance

Work performance is defined here as behavior associated with the
accomplishment of expected, specified, or formal role requirements on
the part of individual organizational members (Campbell, 1990). Thus,
work performance includes in-role behavior that can be contingently tied
to rewards. As such, attempts have been made to distinguish it from other
forms of performance such as organizational citizenship behavior (OCB).
OCB has been viewed as discretionary, not formally recognized by orga-
nizational reward systems, and more geared toward enhancing group
and organizational effectiveness (Moorman & Blakely, 1993; Organ, 1988).

In a TQM context, it may be difficult to separate work performance
from OCB. For example, Bushe (1988) described a total quality culture in
terms of norms, values, and reward procedures that emphasize holistic
behavior oriented toward cooperation with fellow organizational mem-
ers. Work performance in such a culture would tend to be defined
broadly to include accomplishing tasks and taking initiatives above and beyond the call of duty, and sharing information with and helping co-workers. Moorman and Blakely (1993) included such behaviors under the rubric of OCB. Yet, in a TQM context, these behaviors might be both expected and formally rewarded (Bushe, 1988; Scholtes, 1988).

Some support for this notion can be seen in the work of Blackburn and Rosen (1993). In describing the performance appraisal and reward systems of Malcolm Baldrige National Quality Award winners, anecdotal data were reported showing how such organizations tend to emphasize dimensions such as engaging in continuous improvement initiatives and contributions to teamwork. Thus, it would appear that organizations identified as representative of TQM may be defining, measuring, and rewarding work performance in terms that have been previously conceived as OCB. That is,

**Proposition 1:** As organizations achieve greater degrees of TQM implementation, there will be an increasing tendency to define, assess, and reward work performance in terms of OCBs oriented toward the continuous improvement of the group or organization.

**Systems**

A key assumption of the model I propose is that system factors play a pivotal role in the determination of observed levels of work performance. Dobbins and colleagues recently attempted to relate TQM to HRM theory and practice (Carson, Cardy, & Dobbins, 1991; Dobbins et al., 1991). They provided a sharp separation of person and system factors without considering possible linkages between these two sets of factors. Person factors pertain to differences between individuals in terms of ability or motivation, and these have been well addressed by researchers in the area of industrial psychology (e.g., Campbell, 1990). Such factors have been shown to account for as much as 28 percent of the variance in work performance measures (Hunter & Hunter, 1984). Carson and colleagues (1991) also acknowledged the relevance of system factors that were defined to include existing work processes and technological constraints. However, they questioned Deming's (1986) estimate of the importance of such factors in determining work performance. The problem is that even though he did not offer a specific typology, Deming (1986) did suggest that system factors go beyond work processes and technology. Specifically, he noted that "few people in industry know what constitutes a system. Many people think of machinery and data processing when I mention system. Few of them know that recruitment, training, supervision, and aids to production workers are part of the system" (Deming, 1986: 366).

Similar to Deming (1986, 1993), a broad perspective of what constitutes a performance system is taken here. In line with general systems theory, a system is defined as a network of interacting units and processes intended to realize some purpose (Ashforth, 1992; Miller, 1971).
Processes endogenous to the system are conceived in terms of a wide range of interpersonal, organizational, and technical factors. Similar perspectives have been taken by other management theorists (e.g., Blumberg & Pringle, 1982; Lofquist & Dawis, 1969; Peters & O’Connor, 1980; Peters, O’Connor, & Eulberg, 1985).

Broad conceptions of systems and their impact on human behavior are not uncommon. For example, sociotechnical systems theory emphasizes the interplay of both social and technical aspects of a work system and that both must be optimized to achieve performance effectiveness in organizations (Cherns, 1976; Trist, Higgin, Murray, & Pollock, 1963). Homans (1950) discussed the sociology of work groups by carefully considering physical, technical, and social influences on performance and other behavioral phenomena.

An important issue with regard to systems involves the manner in which system factors may affect variation in individual work performance. As noted previously, Deming (1986) argued that system factors are highly influential in determining performance variation within an organization. However, the system could potentially be viewed as a constant, affecting each individual within that system equally. It would then follow that any observed variation in performance must be due to person-based factors.

I take a somewhat different perspective of systems and work performance variation. My viewpoint, in line with that of Dobbins and his colleagues (1991), is that work performance may be influenced by four possible categories of factors: (1) systematic system, (2) random system, (3) person, and (4) person/system interaction. However, performance variation within a system will only result from the latter three categories. Systematic system factors are those that affect individuals equally. For example, employees on a manufacturing line use the same automated process, and their performance is affected equally by that process. This category cannot explain variations in individual performance.

In contrast, random system factors affect employees differentially. The term random implies the uncontrollable and, therefore, the dismissable. However, Deming (1986) and Juran (1989) described how such factors may be controllable and, therefore, important. For example, individuals must deal with variations in raw materials, environmental conditions, tool wear, leadership, supervision, and job design. Dobbins and colleagues (1991: 11) provided an example of a sales representative who is fortunate enough to be assigned to an especially “hot” sales territory, as compared to other sales representatives who are not so fortunate. In a system that is not under control, random system factors can, indeed, play a large role in determining variation in individual performances. For a system that is under control, variation would be decreased, as would the impact of such factors on individual performance. In sum, conceptualizing the system in terms of both systematic and random factors is consistent with the work of Deming (1986). For Deming, systematic factors
determined the mean level of performance among individuals, whereas random factors accounted for most of the variance.

Person factors represent a third category that affects work performance. As noted previously, these factors have been preeminent in HRM, as well as in some attempts to model the determinants of work performance (e.g., Campbell, 1990). People also may interact with the system to form the fourth category. Even if a system is invariant, people may react to it differentially because of their different abilities, values, expectations, and so on. For example, some people may perform better on a traditional assembly-line process with autocratic management, whereas others respond better to team-oriented assembly methods and high involvement of management.

Authors such as Blumberg and Pringle (1982) as well as Deming (1986) have conceived system factors to include processes both internal and external to an organization. The present conceptualization restricts the system to a consideration of only internal processes. The discussion below of potential reciprocal influences between the person and system necessitates such boundaries. It may be unlikely, and indeed unreasonable, to assume that organizational members can have a significant impact on system processes that are external to an organization. In addition, a temporal boundary is placed on the concept of system in the model that follows. That is, system factors are restricted to processes that are relatively current or ongoing in an individual’s work context. For example, unlike Deming (1986), recruitment and selection processes are excluded from consideration as system factors. A temporal boundary is necessary to avoid producing a model that would lead to overattributing performance behavior to the system.

It is important to note that system processes and factors exist at multiple levels within an organization. Thus, a system factor can be organizationwide, affecting the performance of all individuals within that organization. As an example, using the category of random system factors, an organization as a whole may provide an inconsistent degree of training to individual members, thus creating performance variance. Alternatively, a system factor can emanate from a subsystem within that system and apply only to those individuals within the subsystem. An example of how variance may be increased at a subsystem level is when there is inconsistent availability of tools or other raw materials for individuals within a production department. Inconsistent leadership or supervision practices constitute another example of a source of random variation within a subsystem (i.e., group).

Figure 1 provides a model of the determinants of work performance that is based mainly on the previous discussion of system influences. The current model represents a significant addition to the literature for two reasons. First, prior attempts to treat system sources of variation as errors or nuisances to be controlled can no longer be regarded as viable in the study of work performance (cf. Campbell, 1990). The present approach
explicitly considers system factors. Second, prior theorists have either failed to take into account linkages between person and system factors (e.g., Dobbins et al., 1991) or have not been clear with regard to the nature of such linkages (e.g., Blumberg & Pringle, 1982). Blumberg and Pringle’s (1982) model can be viewed as largely representative of current thinking with regard to the modeling of work performance. However, their approach did not go far enough in delineating connections between person and system factors, or the manner in which they may interact in determining work performance. Chatman (1989) stated that truly interactive models should take into account the reciprocal effects of persons on situations and situations on persons.

**A MODEL OF WORK PERFORMANCE**

In general terms, Figure 1 portrays how person/system linkages are essential in attempting to understand how the system is relevant to the determination of work performance. As compared to prior theory (e.g., Blumberg & Pringle, 1982), the current approach attempts to provide an in-depth consideration of the reciprocal influence between person and system factors. System factors encompass two sets of constructs: (a) person enhancers and (b) system constraints and demands. Person enhancers within a system are viewed as influencing aspects of the individual’s ability and motivation. System constraints and demands interact with the person in terms of person/system fit in the determination of performance. The individual also is seen as potentially affecting system constraints
and demands, especially at higher management levels and in jobs that allow for more autonomy. Hierarchical level and autonomy are further portrayed as moderating relationships between person factors and work performance and between system constraints and demands and work performance. Finally, the current model and associated propositions attempt to glean contributions from, and provide applications toward, evolving TQM concepts. It should be noted that the propositions that follow should be viewed as examples of those that can be derived from the current framework.

Person Enhancers

Person enhancers are shown in Figure 1 as a category of system factors that affect performance indirectly by first influencing aspects of the individual. In line with earlier models of work performance (e.g., Porter & Lawler, 1968; Vroom, 1964), individual factors are conceptualized in Figure 1 in terms of work-relevant knowledge, skills, and abilities and motivation. Person enhancers are proposed to involve aspects of HR systems, leadership processes, and job design that may develop and motivate individuals. It should be noted that these categories of enhancers are not meant to be exhaustive of the factors in a work system that might affect the knowledge, skills, and abilities and motivation of individuals. However, they are included here because of the emphasis placed on them in TQM literature in terms of contributing to the systematic and random system-based performance variation described previously.

Knowledge, skills, and abilities. TQM proponents have been particularly vocal in their plea for system-generated activities oriented toward the continuous training and development of organizational members (Brown, 1991; Deming, 1986; Juran, 1989; Walton, 1986). For an increasing number of jobs, such activities will have to be planned on a continuous basis over a person's working lifespan if work-relevant competencies are to be ensured. This situation is accentuated by the fact that jobs and required skills appear to be changing at ever increasing rates (Dobbins et al., 1991).

A number of parallels can be drawn regarding literature about worker obsolescence. Fossum, Arvey, Paradise, and Robbins (1986) defined obsolescence as a longitudinal process characterized by a growing incongruence between an individual's knowledge, skills, and abilities and the current demands and requirements of his or her work. Relevant to the obsolescence process, evidence has shown how prolonged exposure to unchallenging or routine work and nonwork activities may contribute to reduced cognitive ability (Avolio & Waldman, 1990; Denney, 1982). TQM proponents have been quick to point out that work-related competencies can best be maintained over time by continuous training and development activities not only in technical aspects of the job, but also with regard to quality-related knowledge and skills (Deming, 1986; Juran, 1989).
Motivation. Person enhancers also may have an impact on work performance by first affecting aspects of motivation. Motivation is defined in terms of the direction, intensity, and persistence of individual effort (Campbell & Pritchard, 1976; Kanfer, 1990). Motivation is obviously a very broad concept that cannot be fully considered here in terms of its relationship with work performance. The current purpose is to limit the discussion to aspects of motivation that may be particularly influenced by person enhancers within a system and especially to illustrate relevant TQM perspectives and implications. These aspects include self-efficacy and instrumentality beliefs, goal setting, values, and internal (i.e., intrinsic) motivation. Proposed system factors emphasized by TQM proponents as affecting motivation include (a) reward system and leadership processes and (b) job design.

The degree to which an individual obtains the outcomes expected from a certain level of performance will influence that person's future performance-outcome instrumentalities and, thus, future motivation (Gist, 1987). For example, if an individual originally believed that a certain level of performance would result in a specific pay bonus, and the pay bonus actually materialized after that performance was achieved, future performance-bonus beliefs would be strengthened. Based on work involving procedural justice issues (e.g., Folger & Konovsky, 1989), such cognitive contingencies also should depend on the extent to which the individual perceives that his or her performance level is fairly evaluated. Research has confirmed the motivational impact of contingent reinforcement practices (Komaki, 1986; Luthans, Paul, & Baker, 1981; Podsakoff, Todor, & Skov, 1982).

Leadership has been conceived as an influence process whereby the leader seeks to have an impact on followers' beliefs and values, thereby resulting in subsequent behavior changes (e.g., performance improvement) (Yukl, 1989). Transactional forms of leadership follow from contingent reinforcement theory and have been predominant in the literature (House & Mitchell, 1974; Podsakoff et al., 1982). Such leadership stresses (a) a clarification of follower roles and goals and (b) the ways in which favorable outcomes will follow from the successful accomplishment of roles and goals. As such, transactional leadership should be effective in strengthening follower performance-outcome instrumentalities as well as their acceptance and commitment to goals (Locke, Latham, & Erez, 1988). However, transactional leadership also may encourage the type of short-term, individually based goal setting for which TQM proponents have been especially critical. For example, management by objectives has been criticized for encouraging short-term individual performance, potentially to the detriment of group-level goals and continuous improvement (Deming, 1986; Walton, 1986).

Transformational leadership is a somewhat different paradigm that has stressed the enhancement of self-efficacy beliefs and ideological values on the part of followers. By showing confidence in followers and
helping them to work through individual problems or self-doubt, transformational leaders are able to raise the self-efficacy of followers (Bass, 1985; Eden, 1984; Gist, 1987). Such self-doubts may be especially prevalent in organizations attempting to implement TQM through continuous process improvement. Scholtes (1988) reported that individuals frequently encounter intransigent processes and well-established bureaucracy in their attempts to engage in continuous process improvement. Scholtes suggested that empathetic, facilitative leadership behavior is essential to ensure persistent efforts.

Transformational leadership processes also have the potential to enhance followers' work-oriented values to be in line with those of the greater group or organization (Burns, 1978; Conger & Kanungo, 1987). Several processes are likely to be operating when a leader stimulates the transformation of values. First, the leader may demonstrate high degrees of confidence and moral conviction in the righteousness of his or her own values (House, 1977). Second, a clear and appealing vision is espoused, thus generating enthusiasm for certain value-laden or ideological goals (Conger & Kanungo, 1987; Tichy & Devanna, 1986). Finally, the leader serves as a role model for the value system. Bass (1985) described the outcomes of transformational leadership in terms of extra effort and performance beyond expectations on the part of followers.

Such forms of leadership appear to be very much in line with the type of leadership to which TQM proponents have frequently referred in their pleas to managers (Deming, 1986; Juran, 1989; Sashkin & Kiser, 1993). For example, managers have been exhorted by Deming (1986: 24) to have a "constancy of purpose." In other words, Deming is proposing that managers should pursue diligently the long-term goal of remaining competitive through continuous improvement processes. They also should communicate an appealing vision emphasizing continuous improvement, teamwork, and customer service in order to inspire followers. Moreover, managers can act as role models by taking a personal interest in activities geared toward improving processes and customer relationships. In sum, transformational leadership can be viewed as the mechanism by which managers may shape individuals' self-efficacies and values to perform in such a way as to benefit teamwork to achieve group goals and the continuous improvement of processes (Waldman, 1993). It remains, however, unclear as to whether transformational leadership should be considered a systematic subsystem variable, as opposed to a random subsystem variable. Some theorists have considered its potential to have a uniformly positive effect on performance within a group, which is in line with the notion of systematic subsystem influence (Bass, 1985; Burns, 1978). However, research has shown that the display of such leadership tends to vary within a group, thus aligning it more with random subsystem variation (Yammarino & Bass, 1990). Taken as a whole, it is expected that
Proposition 2: Transformational leadership will stimulate follower self-efficacies and work values oriented toward teamwork and the continuous improvement of work processes.

Job design represents an additional form of person enhancer within a system that can affect motivation and can be linked to concepts evolving from TQM. A classic approach to job design was put forth by Hackman and Oldham (1980) in terms of job characteristics theory. Along similar lines as the current model, Hackman and Oldham maintained distinctions between person factors and system factors. A key system factor involved characteristics of jobs. Hackman and Oldham described several implementing principles for job design, at least three of which are quite relevant to TQM. The principle of establishing client relationships involves giving employees direct communication and responsibility for managing relationships with clients, presumably including those either internal or external to the organization. As an example, Jacob (1993) recently described Johnson & Johnson's efforts to allow workers the opportunity to visit special booths in production facilities where they could hear questions and complaints directly from outside customers through an 800 telephone line.

Hackman and Oldham (1980) included the task of deciding when and how to check on the quality of work produced as an example of vertical loading. This notion was repeated in their consideration of ways of opening feedback channels. As noted by Hackman and Oldham, jobs traditionally have been designed such that quality checks on products or services are done by individuals other than those actually responsible for the work. As a number of writers in the TQM literature have insinuated, such forms of job design do not encourage organizationwide ownership of quality problems or teamwork to improve quality (Dean & Evans, 1994; Deming, 1986; Tenner & DeToro, 1992). Hackman and Oldham suggested that allowing workers to control their own quality also would serve to increase direct feedback provided by the job. In sum, it appears that job design geared toward quality might encourage performance beyond in-role requirements and, ultimately, should result in more involved employees who attempt to work with others to assure quality improvement (Sashkin & Kiser, 1993). It should be noted that job design would be seen as a systematic system factor when applied evenly across individuals within a system. In contrast, job design is a random system variable when applied unevenly (i.e., when job characteristics are not the same across individuals).

Williams and Bunker (1993) recently proposed a revised version of the job-characteristics model more in line with the general model of work performance portrayed in Figure 1. They noted that work performance has not been consistently predicted by prior research on job characteristics
Three reasons may account for this inconsistency. First, changes in job design are not likely to improve in-role performance unless the new procedures and methods are at least as efficient as the old ones (Katzell & Thompson, 1990). Second, when a job is high on job characteristics, individuals may devote more time to precision or details, thus enhancing work quality at the expense of work quantity. Yet, organizations often emphasize quantity in their measures of work performance. Third, similar to earlier possibilities suggested by Hackman and Oldham (1976), Williams and Bunker (1993) viewed behavioral outcomes such as work performance to be more causally remote from job characteristics, as compared to attitudinal outcomes. They proposed that job characteristics and associated psychological states influence the attitudinal outcome of internal work motivation, which, in turn, influences extra role performance defined mainly in terms of OCBs. Thus, the internal work motivation achieved through enriched work may cause individuals to go beyond in-role requirements to engage in the types of extra-role behaviors stressed by TQM. That is,

Proposition 3: Internal work motivation derived from enriched work will lead to extra-role performance behavior, including engaging in teamwork and continuous improvement activities.

System Constraints and Fit

A number of authors have described how various factors can serve as constraints on work performance behavior (Davis-Blake & Pfeffer, 1989; Johns, 1991; Peters & O'Connor, 1980; Peters et al., 1985). Such constraints may limit the extent to which individual qualities are able to affect performance behavior. As conceived here, system constraints and demands refer to characteristics of technological and work processes, as well as organizational policies, structure, and culture. Bowen, Ledford, and Nathan (1991) described how bureaucratic structures and policies also can serve to constrain variation in work performance. Davis-Blake and Pfeffer (1989) argued that situational effects were probably more important than independent dispositional qualities in terms of influencing an individual's attitudes and behavior in organizations. They specifically noted that organizational settings are strong situations that have a large impact on individual attitudes and behavior, thereby limiting the extent of distinct dispositional effects (i.e., effects that can be conceived independently of the situation). Empirical support for the notion that inhibiting situational constraints can lead to lower work performance has been obtained for a variety of material resources and physical work-environment variables (Kim & Campagna, 1981; Steel & Mento, 1986; Sundstrom, Burt, & Kamp, 1980).

Figure 1 portrays aspects of system constraints and demands interacting with aspects of the person in the determination of performance.
These processes were introduced previously as person/system interaction factors and can be viewed in terms of fit. Schneider (1985) considered the importance of congruence or fit of the person to the setting but suggested that no taxonomies existed for specifying relevant research in the area. Lofquist and Dawis (1969) proposed a theory of work adjustment based on the concept of correspondence between the person and work environment. Correspondence was defined in terms of the mutual fulfillment of requirements on the part of both the person and the environment. Lofquist and Dawis (1969: 46) suggested that to ensure maximum “satisfactoriness” or performance, both work-related abilities and personality characteristics should be matched to stimulus conditions established by an organizational context.

Chatman (1989) introduced a conceptualization of person/system fit that follows from the Lofquist and Dawis (1969) approach. Person/system fit possibilities were considered with regard to two aspects of system factors: (a) work and job demands and (b) organizational culture. The former possibility includes the notion that individuals may need to be matched to work and occupational requirements in terms of knowledge, skills, and abilities. Hunter (1980) provided a classification of job types for which cognitive abilities, as opposed to psychomotor abilities, are more relevant to the determination of work performance. Work involving complex cognitive activities requires a high degree of general cognitive abilities; work involving manual activities requires more psychomotor abilities.

Patterns of an individual’s motives also may differentially predict work performance, depending upon the job and its demands. Motives are relatively stable individual needs that drive behavior such as work performance (McClelland, 1985). McClelland’s work has focused on need for achievement, need for power, and need for affiliation. Some initial research has shown how optimal motive patterns may vary for different types of managers. In general management positions, effective individuals have been shown to be high on need for power and relatively low on needs for affiliation and achievement (Cornelius & Lane, 1984; McClelland & Boyatzis, 1982). Such results suggest that general management requires persuasiveness and the desire to assert influence and exercise control over others. In contrast, technical managerial positions, such as those found in R&D, may require individuals with a high need for achievement attained through personal persistence (Varga, 1975).

Despite these beginnings, additional research is necessary to provide a broader understanding of motive fit requirements. For example, it is not clear as to the appropriate motive pattern for managers in a TQM-oriented organization. Perhaps the motive pattern for general management positions described would still be largely appropriate. However, in a TQM context, it may be particularly important for managers to possess a high degree of socialized power or activity inhibition (McClelland, 1985). That is, managers in such a context would need to use their power
to empower others and to further organizational goals, rather than their own personal goals. The importance of employee empowerment in a TQM context has been discussed at length by Sashkin and Kiser (1993). Their arguments center around the need for employees in TQM settings to feel empowered to take initiatives and appropriate actions to solve quality-related problems. In general,

Proposition 4: Individual motive patterns will interact with job demands and organizational context in the determination of work performance.

Chatman (1989) also focused on the importance of person/system fit in terms of the congruence between the cultural norms and values of an organization and comparable norms and values of persons within that organization. For the present discussion, organizational culture can be viewed as a form of system constraint or demand that may interact with the person in the determination of performance. Chatman (1989) described how person/organizational culture fit could be achieved in several ways. These include individuals gravitating toward organizations with norms and values congruent with their own, organizations selecting congruent individuals, and socialization processes to ensure congruence. Bowen and colleagues (1991) proposed that selection processes should be more geared toward attempting to fit individuals with organizations, rather than the traditional focus on specifically defined jobs. In line with the work of Chatman (1989), an important category of fit variables considered by Bowen and colleagues (1991) included values and beliefs.

Other authors (O'Reilly et al., 1991) provided some evidence supporting the importance of person/organizational culture fit in terms of predicting such outcomes as commitment and turnover. It is not established at this point as to how such fit might affect actual work performance. However, Chatman (1989) proposed that person/organizational culture fit would be positively related to the type of extra-role performance behavior described previously. She argued that individuals who share organizational values would be "more likely to contribute to the firm in constructive ways" (Chatman, 1989: 343).

Because TQM organizations may be especially conducive to extra-role performance behavior, person/organizational culture fit and work performance might be best understood in the context of TQM. Culture in TQM organizations has been referred to largely in terms of problem-solving and change orientations. Specifically, these orientations include predominant norms and values that emphasize taking steps to learn about problems and make appropriate changes, sharing information to facilitate cooperative or teamwork efforts to deal with problems both within and between groups, developing employees to deal with problems, and having a customer-focused orientation (Bushe, 1988; Dean & Evans, 1994; Sashkin & Kiser, 1993). With regard to predicting individuals' work performance, a TQM organization logically would be on better foot-
ing by having employees whose own norms and values are in line with that organization’s culture. At the individual level, such norms and values include flexibility, the desire to learn and solve problems, and a team orientation (Bowen et al., 1991; Dobbins, Cardy, & Carson, 1993). Similar to a team orientation, Moorman and Blakely (1993) stressed collectivist values as opposed to individualism. Without such norms or values, it is not likely that the individual will adjust to the TQM organization, and he or she would eventually be a candidate for turnover (Chatman, 1989). In general,

**Proposition 5:** Work performance will be maximized when the norms and values of individuals are congruent with the cultural norms and values of the organization.

The Effect of the Person on the System

An issue that has been largely ignored by prior conceptualizations of work performance is the effect of the person on the system. Figure 1 shows how the person can influence the system, especially at higher management levels and when work is designed in terms of autonomy. Prior theorists have been adamant in their plea to researchers to consider reciprocal influences between persons and the system, not just the effects of the latter. For example, Homans (1950) criticized sociologists for not considering the effects of individuals on groups and society. Lofquist and Dawis (1969) suggested that individuals may attempt to change their work environments to be more correspondent with their own personalities. Chatman (1989) noted growing evidence of how people are able to change situations.

Schneider (1985) strongly suggested the importance of managers in effecting change in organization system functioning and design. Such thinking has been echoed by a number of other authors. For example, Hambrick and Mason’s (1984) upper echelons perspective was based mainly on the notion that strategic choices and change are reflective of top-managers’ values and cognitive bases.

Katz and Kahn (1978) suggested the importance of maintaining a system perspective. They specifically described how it is possible, indeed essential, for higher level managers to engage in the “subordination of structure” (Katz & Kahn, 1978: 543). Subordination of structure entails the origination of new structures and policies (i.e., asserting freedom from existing structures or policies when necessary to improve social or technical systems). The notion of leadership as a mechanism to embed organizational culture is germane to Katz and Kahn’s (1978) arguments. Schein (1990) argued that there tends to be constant pressures on an organization’s culture to evolve and change. Leaders of organizations may be able to perceive elements of culture that are dysfunctional and then take steps to change or re-create them.

Such concepts as the subordination of structure and culture creation...
appear to be most relevant at higher management levels (Katz & Kahn, 1978). Increasingly, at lower levels, power and system-imposed constraints may not allow individuals enough freedom to seriously affect the system. Ashour and Johns (1983) included in their list of constraints a lack of control over formal incentives, larger spans of control, and standardized work processes. Mintzberg (1983) also discussed the moderating effect of hierarchical level on managers’ abilities to make changes in the system. Top-level executives were seen as most capable of making significant changes because of their broad sources of power and influence. The control over top executives was viewed by Mintzberg (1983) as being somewhat diffuse in that external factors and constituencies tend to be ill-defined, thus allowing leeway to make adjustments in the internal system. Conversely, lower level managers find it more difficult to make significant changes in the system because of bureaucratic control processes that limit their actions. Mintzberg (1983) and Donaldson and Lorsch (1983) also described a number of scenarios whereby external factors and constituencies can put constraints on top executives. However, externally imposed sources of influence should not be confused with lack of choice. That is, despite the importance of such influences on executive actions and decision making, executives are mainly free to choose various courses of action that can include significant changes to the internal system (Donaldson & Lorsch, 1983; Hambrick & Finkelstein, 1987; Mintzberg, 1983; Stewart, 1982).

The previous arguments are consistent with Deming’s (1986) reasoning about systems that may, at first glance, appear to be somewhat paradoxical in nature. That is, Deming proposed that organizational members are mainly captured and constrained by system processes; nevertheless, managers (who are also organizational members) are responsible for creating and shaping systems. A dichotomy based on hierarchy seems to be suggested by Deming, whereby managers at higher organizational levels are increasingly able to have an impact on or to formulate systems.

As compared to hierarchical level, degree of autonomy may be a more comprehensive concept in reference to persons’ abilities to influence a system. Thus, as previously discussed, autonomy may not only act as a person enhancer to increase internal work motivation, it also may serve to moderate the extent to which individuals are able to significantly influence a system. Autonomy may be defined as the degree of freedom or discretion a person has over the task domain regarding activities such as determining procedures and scheduling (Ashforth, 1990; Hackman & Oldham, 1980).

The effect of autonomy on system change may best be understood by considering its opposite, powerlessness, which has been defined in terms of a lack of autonomy (Ashforth, 1989). The end result of powerlessness has been described by Ashforth (1990: 30) as a state of “organizationally induced helplessness.” It may be viewed as a syndrome whereby, because
of a chronic lack of autonomy, the individual displays feelings of helplessness and reduced job and organizational involvement (Ashforth, 1989; Martinko & Gardner, 1982). In sum, the individual develops the cognition of being unable to affect organizational outcomes.

Work designed on the basis of autonomy can enable feelings of freedom and power to effect change in the system. Lofquist and Dawis (1969) described how flexibility in a work environment enables individuals to try to change it to increase their work adjustment. Professional occupations such as university professor generally are conceived in terms of autonomy. Other occupations such as those involving manufacturing or routine clerical operations have more commonly been seen as lacking autonomy. However, Adler (1993) provided a case example of how workers at the NUMMI automobile manufacturing facility in California have been able to make a number of significant changes to the work system. Adler concluded that these changes stem largely from the enhanced power and autonomy afforded to the workers in the NUMMI system. In total, these arguments and findings suggest that

Proposition 6: The person will have a greater potential to have an impact on system change at increasing hierarchical levels of management and when work is designed with a higher degree of autonomy.

Hierarchical Level/Autonomy and Work Performance

The moderating effects of hierarchical level and autonomy on work performance also follow from the prior discussion. Dobbins and colleagues (1991) noted that even a system-based approach to work performance should include the increasing importance of person factors at higher management levels, independent of the system. That is, at higher levels, the performance of managers is due more to inherent abilities and motivation. Hambrick and Finkelstein (1987) defined managerial quality as due in part from their ability and motivation to effectively enact discretion. Specific managerial characteristics involved in enacting discretion may include such factors as cognitive complexity and aspiration level.

Autonomous job design also implies that work performance will mainly be a function of person factors. Autonomy enables individuals to demonstrate their own efforts and initiatives, as opposed to being subject to constraints or demands imposed by the system (Hackman & Oldham, 1980). It is interesting to note that the high degree of weight attributed by Deming (1986) to system factors may have been due in large part to prevailing norms in industry. That is, work traditionally has been designed lacking autonomy. Perhaps if the trend shifts toward more autonomy in job design, TQM proponents may give less credence to random system-based performance variation. In total,
Proposition 7: Person factors will outweigh system constraints and demands in the determination of work performance at increasing hierarchical levels of management and when work is designed with a higher degree of autonomy.

RESEARCH ISSUES AND IMPLICATIONS

A number of research issues can be drawn from the above discussion. According to Figure 1, the causal modeling of work performance should include both person and system factors and also consider the nature of linkages between them. Increasingly, such research is being attempted (e.g., Schmidt, Hunter, & Outerbridge, 1986), although failure to include key variables and their interrelationships could lead to spurious results (James, Mulaik, & Brett, 1982).

Subparts of the model also might be tested. For example, methodologies such as those represented by the organizational culture profile (Chatman, 1989; O'Reilly et al., 1991) could be used to determine whether person/organization fit, in terms of norms and values, leads to enhanced work performance in a TQM context. Although the instrument used by O'Reilly and colleagues (1991) included a number of items relevant to TQM, perhaps future research could particularly focus on TQM contexts. Along similar lines, Dobbins et al. (1993) provided an interesting example of how job-analysis methods could be used to develop behavioral incidents reflective of important values in TQM settings. Such methods could result ultimately in better selection and training procedures in organizations attempting to implement TQM. Indeed, Levine (1993) provided an example of a certified public accounting firm's attempt to use an instrument to screen for employees who could adapt to the firm's ongoing TQM implementation.

Interesting leadership research is suggested by the present model. Bass (1985) originally proposed that transformational leadership would result in extra effort and performance beyond expectations, although little research has directly tested this notion. In line with the prior discussion, a TQM organization might provide an excellent setting to examine the effects of transformational leadership because such a context would tend to rely on work performance characterized by extra-role behavior. Research could help determine whether transformational leadership drives extra-role values and behaviors in TQM settings.

The present model implies that persons can affect the nature of system constraints and demands at increasing hierarchical levels in an organization and when work is designed for autonomy. Questions remain as to what aspects of systems might be affected. For example, although the notion of a system manager has been espoused in TQM literature, it is not clear as to what system features can be realistically changed by managers in organizations, especially at lower hierarchical levels. Tech-
nological and bureaucratic constraints imposed at higher levels may pre-
vent lower level managers from making any real changes to the system
(Hammer & Turk, 1987; Mintzberg, 1983). Nevertheless, Ashour and Johns
(1983) noted a degree of discretion on the part of lower level managers,
especially with regard to workflow pacing and division of labor among
subordinates. It is possible that a greater degree of TQM implementation
in an organization serves to allow even lower level managers the oppor-
tunity to make significant system changes. In short, research to sort out
when and how managers can act as system change agents would be
beneficial.

Individual- and Unit-Level Work Performance

Linkages between individual- and unit-level work performance are
implied by the present discussion and should be the focus of future re-
search. Although a separate consideration of unit-level performance is
beyond the scope of this article, it nevertheless has been seen as an
important topic in TQM literature (e.g., Deming, 1986; Sashkin & Kiser,
1993; Scholtes, 1987). Schneider (1985) was careful to point out in his con-
sideration of levels-of-analysis issues that the performance of individuals
cannot be simply summed to form the performance of a group or organi-
zation, especially over time. He used the example of how even if it is
known that an individual incentive program leads to higher rates of in-
dividual productivity, it does not necessarily mean that an organization
that uses the program systemwide will be more productive. Staw (1986)
also was quick to note possible discontinuities between individualistic
versus more collectivistic approaches to motivation.

An individual incentive program represents an approach to the man-
agement of performance that assumes that by enhancing individual task
performance, the performance of the greater unit or organization subse-
quently will be enhanced. TQM proponents have been critical of the use
of individual incentive programs and related practices such as individu-
alized goal setting (e.g., management by objectives) for at least two rea-
sons. First, individuals may attempt to set or negotiate less challenging
goals to obtain rewards. Second, and perhaps more important from a
TQM perspective, people tend to set goals that stress only short-term
productivity or short-term financial outcomes. Thus, because of self-
interests, goals are pursued at the expense of the type of teamwork and
continuous improvement efforts necessary to improve work systems and
processes (Kerr, 1975; Scholtes, 1987, 1988). As noted by Deming (1986),
traditional performance appraisal and associated reward mechanisms
reward people who do well within the system. However, such procedures
accomplish little in an attempt to improve the system. These are poten-
tially growing problems because of the increasing interrelatedness of
individuals’ work activities and the need on the part of organizations to
continuously improve to maintain their competitiveness.

It could be that the effectiveness of individual incentive procedures
may depend mainly on hierarchical level and autonomy. That is, the current model implies that for higher level managers and for work that involves more autonomy, person factors will tend to outweigh system constraints and demands in the determination of performance. Thus, for example, the work performance of higher level managers might benefit from individualized incentive plans because such managers are not as constrained in the utilization of their own person factors (cf. Abowd, 1990). Conversely, lower level managers and those in unautonomous jobs might be more constrained and not personally able to control their own performance as much as system factors do. They might, over time, become discouraged by incentive procedures that attempt to link the measurement of their performance to individualized rewards. As Deming (1986) suggested, they would tend to view the incentive plan as a lottery and either attempt to manipulate it or eventually become victims of organizationally induced helplessness (Ashforth, 1990). In the absence of research, the above comparison must remain speculative.

Finally, a key to understanding linkages between individual- and unit-level performance may be found in extra-role behaviors. My discussion has included extra-role behaviors within the construct of work performance. In a TQM context, extra-role performance may result in better teamwork and cooperative efforts to continuously improve unit functioning. As a result, I would expect that extra-role performance on the part of individuals would be associated with unit-level performance measures, especially over time. Research is necessary to test such possibilities.

Conclusion

This article attempts to incorporate TQM concepts and proposals into a system-focused approach toward modeling work performance. Propositions have been put forth that may help to further the understanding of processes leading to the maximization of work performance. Various literatures, including writings in TQM, have been integrated in an attempt to show the necessity and implications of dealing with system phenomena. In sum, the system has been viewed here as affecting performance by indirectly enhancing aspects of the person, interacting with the person in terms of person/system fit, and constraining performance at lower hierarchical levels and in jobs lacking autonomy.

At the same time, person factors can have an impact on the nature of systems and work performance, especially at increasing hierarchical levels of organizations and in jobs characterized by autonomy. Thus, I have focused on how and why both person and system factors must be considered simultaneously when modeling the determinants of performance. Perhaps greater theoretical and empirical attention to the combined effects of person and system factors would help management researchers to develop a better understanding of performance issues. In doing so, management theory and research might become more applicable to organizations in terms of helping them to enhance their performance.
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