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MODELS OF ORGANIZATION AND TOTAL QUALITY MANAGEMENT: A COMPARISON AND CRITICAL EVALUATION

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Total quality management (TQM) is examined in relation to the mechanistic, organismic, and cultural models of organization in an effort to bridge the gap between TQM practice and management theory. These models provide diverse analogues for explaining the management of organizations and highlight different issues concerning the practice of TQM. The article also suggests that research on TQM practice has potential to expand the understanding of these management models.

During the past few years, American managers have been inundated with articles, books, and seminars describing the "quality revolution." Total quality management (TQM) has been described as a new way of thinking about the management of organizations (Chorn, 1991), a comprehensive way to improve total organization performance and quality (Hunt, 1993), an alternative to "management by control" (Price, 1989), and, ultimately, as a paradigm shift (Broedling, 1990).

Proponents of this new paradigm depict customer-oriented organizations that are organized around processes, run by teams, and conducted more like ballets than hockey games (Slater, 1991). They advocate a humanistic, systems approach to management (Brocka & Brocka, 1992) while espousing the need for fundamental cultural changes at all levels of organization (Broedling, 1990).

To date, many corporate managers have invested heavily in total quality efforts, whereas others have waited for "hard" evidence that it works. Similarly, some academics have climbed aboard the TQM bandwagon, both through their consulting efforts and in their own institutions, but many others dismiss it as a fad or as a repackaging of well-worn ideas. As a result, they may fail to see implications for management theory and research.

In this article, TQM is conceptualized, not as a new paradigm, but as a comprehensive management practice that captures signals from established models of organization and amplifies them by providing a methodology for use. Although different quality experts emphasize different aspects of this methodology, its major components can be summarized as follows (Olian & Rynes, 1991; Seraph, Benson, & Schroeder, 1989):

Goal: TQM establishes quality enhancement as a dominant priority and one that is vital for long-term effectiveness and survival. It claims that improving quality can decrease rather than increase costs and facilitate attainment of other demands and objectives.

Definition of quality: Quality is satisfying or delighting the customer. All quality-improvement initiatives must begin with an understanding of customer perceptions and needs.

Role/nature of environment: TQM blurs the boundaries between the organization and the environment. Entities previously regarded as outsiders (e.g., suppliers, customers) are now considered part of organizational processes.

Role of management: Management's role is to create constancy of purpose for improvement of product and service (Deming, 1982), and to create a system that can produce quality outcomes. Managers and the system, not the workers, are held responsible for poor quality (Juran, 1991; Ross, 1993).

Role of employees: Employees are empowered to make decisions, build relationships, and take steps needed to improve quality within the system designed by management. Additional training and educational opportunities provide necessary skills for this broader role.

Structural rationality: The organization is reconfigured as a set of horizontal processes that begin with the supplier and end with the customer. Teams are organized around processes to facilitate task accomplishment.

Philosophy toward change: Change, continuous improvement, and learning are encouraged. Ideally, all organizational members are motivated to improve the status quo.

Because its origins lie mainly outside the academic world, TQM's connections to management theory have yet to be made explicit. The purpose of this article is to examine TQM in relation to three well-known organizational models in an effort to bridge the gap between TQM practice and management theory. By comparing components of each model with TQM principles, I hope to show how each model contributes to TQM

practice and reveals important research questions for future work on the topic.

The three models applied here include the mechanistic, organismic, and cultural models of organization. These models were chosen because they provide diverse analogies for explaining the management of organizations (Keeley, 1980), and, consequently, they highlight different aspects of TQM. Those who practice TQM may or may not hold strictly to any one of these three perspectives; indeed, they may vacillate among them. However, allegiance to a particular viewpoint is likely to influence the practice of TQM by affecting the selection and application of quality components.

In summary, TQM is a systematic approach to the practice of management, requiring changes in organizational processes, strategic priorities, individual beliefs, individual attitudes, and individual behaviors (Olian & Rynes, 1991). It is not a cut-and-dried reality but an amorphous philosophy that is continuously enacted by managers, consultants, and researchers who make choices based not only on their understanding of the principles of TQM but also on their own conceptual frameworks concerning the nature of organizations. In the next section, I examine TQM practice from a mechanistic conception of organization.

TQM AND THE MECHANISTIC MODEL

In describing TQM as a new management paradigm, quality promoters generally compare it to the management principles espoused by classical management writers in the early part of this century. According to Ross (1993: 2), "no management issue since the Scientific Management Movement of Frederick Taylor in 1907 has had the impact of the quality movement." Similarly, Brocka and Brocka suggested that our notions about quality management are "revolutionary compared to the strict, hierarchical, authoritarian organizations that existed in the past" (Brocka & Brocka, 1992: 4).

Clemmer (1992) explicitly compared TQM with what he called the "traditional paradigm" of management. He noted that in the old paradigm, managers think; employees do. Objectives, standards, and measurements start at the top and cascade down the organization. Errors are caught and corrected by specialists during or after production or delivery.

Clemmer's traditional paradigm corresponds closely to the mechanistic model of organizations described by classical management theorists. From this view, the organization is a tool or a machine designed solely to create profits for its owners (Gharajedaghi & Ackoff, 1984). Organizational life is routinized with the precision demanded of clockwork (Morgan, 1986) by reducing work to elementary tasks and establishing clear reporting relationships and standard policies. Like uniform machine parts, employees passively perform elementary tasks with little opportunity for interaction. The simplicity of the tasks ensures that they

can be replaced as needed. Efficiency, conformity, and compliance are dominant values. Because it describes a simple system that can be set to produce varying levels of output, this "machine model" appears to fit at level three of Boulding's (1956) hierarchy of systems.

A quick perusal of TQM components provides ample evidence that this new management practice differs from the mechanistic approach. Yet, closer examination reveals certain similarities between TQM doctrine and mechanistic thought that are not typically discussed by TQM promoters. These can be observed only by making explicit some of the implicit assumptions of TQM about organization and environment. In the following section I attempt to do this by comparing dimensions of TQM with those of the mechanistic model.

Linking Mechanistic Tenets With TQM

Goal. The mechanistic model assumes that the organization exists to achieve a specific performance goal. This basic assumption has implications for both employees and organizations. Concerning employees, a mechanistic orientation demands loyalty to the concern and obedience to superiors (Burns & Stalker, 1961). Accordingly, it is taken for granted that members will subordinate their personal interests and needs for the benefit of the organization (Fayol, 1916). A contractual relationship exists to bind employees to this purpose.

TQM also assumes that organizations should exhibit constancy of purpose (Deming, 1982). Deming's first principle can be compared directly to Gulick's exhortation that managers develop "intelligent singleness of purpose in the minds and wills of those who are working together in a group, so that each worker will of his own accord fit his task into the whole with skill and enthusiasm" (cited in Shafritz & Otts, 1992: 89).

It is no surprise that in both perspectives organizations are understood as goal-attainment devices. After all, this conception is so fundamental that it is embodied in the very meaning of the term *organization,* which is derived from the Greek *organon,* meaning a tool or instrument (Georgiou, 1973; Morgan, 1986). Comparing the type of goal pursued by the two frameworks, however, leads to a more surprising correlation. Mechanistic organizations focus on performance—productivity and efficiency are primary concerns. For TQM, the stated goal is to improve quality, but frequently, the real objective also is to increase the productivity and/or efficiency of the organization.

Early quality theorists like Crosby (1979) advocated quality as a way to reduce organizational costs such as scrap, rework, and inspection. Using TQM methods for this purpose is clearly consistent with the mechanistic model's emphasis on achieving efficiency. This performance orientation has not disappeared as the TQM literature has matured. Recent articles on TQM practice continue to emphasize its ability to induce cost savings, eliminate personnel, and bolster profits (Gevritz, 1991; Jacob, 1993).

Definition of quality. In the mechanistic model, quality is defined as conformance to internally derived standards. If it "works," it is acceptable. In contrast, TQM bases quality standards on customer needs and desires. This customer-based approach assumes that quality "lies in the eyes of the beholders" (Garvin, 1984: 27). According to one expert: "Part of TQM is constantly meeting customer needs, and if you're not turning out something that the customer finds useful, it doesn't matter what else you do" (Eisman, 1992).

Role/nature of environment. It would be easy to say that the mechanistic model employs closed-system assumptions about organizations, whereas TQM takes an open-system view, but such a statement would be overly simplistic. Ashmos and Huber (1987: 609) denied that classical management scholars ignored the impact of the environment on organizations. They argued that there is a difference between believing that organizations are closed systems and using closed-system models of open-system organizations (the early theorists did the latter). Because they viewed the environment as more placid and predictable than today's writers (Chafee, 1985), it makes sense that their attempt to model the "main features of the problem" would lead them to focus primarily on internal variables (March & Simon, 1958: 169).

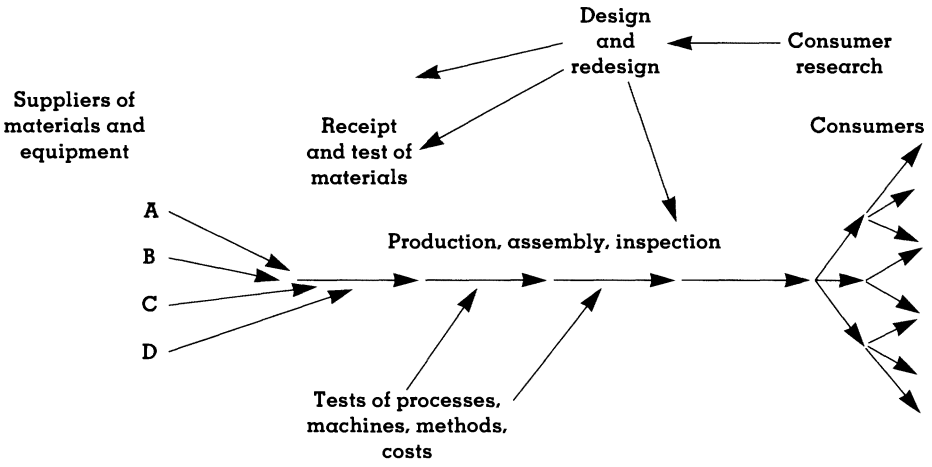
In contrast, proponents of TQM have asserted their departure from traditional thinking by recognizing the environment as a vital source of resources and constraints. The term *boundaryless organization,* which has permeated recent TQM literature, connotes the more open posture of this perspective. This blurring of boundaries between organizations and environments is grounded in Deming's (1986) flow diagram in which customers and suppliers are viewed as part of organizational processes (see Figure 1). In effect, elements formerly conceived as part of the environment are now brought into the organization.

It can be argued that Deming's model is no less a simplification than were those used by classical management theorists. The frame may have changed to incorporate more constituents, but the focal point (i.e., the organization's technical core) remains the same. In fact, Deming (1982) asserted that top managers express little interest in the technical issues surrounding product design and production. He contended that concern with external factors has diverted their attention from the internal workings of the organizational system.

Role of management. Classical management theorists define management's role according to principles: Managers plan, organize, direct, and control. TQM theorists suggest that managers lead rather than plan, empower rather than direct, partner rather than organize, and assess rather than control (Ginnodo, 1992). Their roles are redefined from directors who give orders to designers who create visions and establish systems (Senge, 1990).

Certainly, these TQM principles describe new roles for many managers—but they are still principles—and managers who view TQM as a

FIGURE 1
Deming's Flow Diagram: An Organizational System[a]



[a] From *Out of Crisis*: 4 by W. E. Deming, 1982, Cambridge: Massachusetts Institute of Technology, Center for Advanced Engineering. Copyright 1982 by Massachusetts Institute of Technology, Center for Advanced Engineering. Reprinted by permission.

set of principles come dangerously close to viewing it as the "one best way" of managing. Like Taylor's scientific management, and Mooney and Reilley's principles of organization, TQM is seen as a "complete" prescription for management practice. Many TQM proponents maintain that implementing TQM requires the adoption of the entire set of principles and procedures.

Deming (1982), for example, described his 14 principles of quality as having universal applicability. Motiska and Shilliff's (1990) 10 "precepts" of quality range from written procedures to comprehensive audits, and they resemble Weber's (1946) components of bureaucracy. Schonberger (1992: 82) lists 19 quality principles that, in his words, "apply nearly all the time." These principles differ from those prescribed by, say, Fayol (1916), but they are still presented as "acknowledged truths" (Fayol, 1916).

It seems paradoxical that so many of those touting TQM as a new paradigm should prescribe it as a universal truth when this belief generally is described as a limitation of the perspective they intend to replace. Of course, it is likely that most quality experts view their principles as general guidelines versus specific instructions. Yet, Fayol (cited in Shafritz & Ott, 1992: 56) also described his "principles" as "flexible and capable of adaptation to every need." "It is a matter of knowing how to make use of them," he said, "which is a difficult art requiring intelligence, experience, decision and proportion."

Role of employees. According to the mechanistic model, employees follow orders and carry out specialized tasks within narrowly specified positions. TQM practice clearly broadens employees' roles by allowing

them to control their own actions and by providing them with accurate data and problem-solving skills. As a result, employees are treated less like common machine parts, and more of their intelligence and unique human qualities are brought into play.

Structure rationale. In the mechanistic model, organizational structure is viewed as a vertical hierarchy or chain of command whose major objectives are accountability and control (Chapple & Sayles, 1961; Hammer, 1990; Scholtes & Hacquebord, 1988). Division of labor serves as the primary means of attaining performance goals and ensuring technical rationality. Supervisors attempt to optimize subsystem performance by controlling activities within functional areas. Coordination between functional groups is handled by hierarchical referral.

TQM differs from this chain-of-command orientation because it includes a horizontal design based on the flow of work processes across the organization. Boundaries between functional areas are eliminated to ease coordination. Enhancing the flow of work across processes theoretically is more important than maintaining control. In practice, however, TQM researchers appear to stress control as much or more than those who use a mechanistic arrangement. High priority is placed on reducing variation in individual processes, or getting processes "in control." Moreover, as in mechanistic organizations, TQM practitioners frequently stress control over activities as opposed to outputs. Olian and Rhynes (1991) noted that the emphasis on process control (as opposed to outcomes) is one of the most frequently leveled criticisms of the TQM concept.

To establish control over processes, users of TQM begin with flowcharts. Any procedures that do not add value (e.g., extra phone calls or required signatures) and any motions that are unnecessary (e.g., stooping, walking, and reaching) are eliminated. As a result of these audits, standards are set, performance is monitored, and procedures are set forth regarding what is to be done, who is to do it, when it is to be done, and the sequence in which it should be done (Motiska & Shalliff, 1990).

This description of process control evokes comparison to Taylor's (1916) scientific management, which emphasized the one best way to do a particular task. It controls activities to increase consistency, reduce waste, and speed the flow of work. As a part of TQM, however, the extent to which process control is entirely mechanistic seems to depend on three factors: first, who conducts the audits, who designs and carries out the procedures, and who checks to be sure the procedures are done correctly. As noted previously, empowering workers and drawing on their knowledge and skills are not compatible with Taylorism. Second is the extent to which productivity and efficiency are emphasized as opposed to the broader aims of becoming competitive, staying in business, and providing jobs. If the major objective is to eliminate jobs, a mechanistic view is probably evident. Third is whether processes are viewed in static versus dynamic terms. Recognition that work processes must be updated and improved constantly implies an advance over static scientific manage-

ment techniques. This notion leads to the final point of comparison between the two perspectives.

Philosophy toward change. The operations of an ideal machine do not vary (Gharajedaghi & Ackoff, 1984). In the mechanistic model, stability is prized because it increases predictability, which, in turn, increases control. Users of TQM, however, endorse a philosophy of continuous improvement. Kiernan (1993) argued that in the 21st century, companies must embrace continuous improvement and change if they are to adapt to the competitive exigencies of speed, global responsiveness, and the need to innovate constantly or perish.

This change in philosophy, from an emphasis on stability and predictability to one of change and learning, appears to mark a vital distinction between mechanistic thinking and TQM. But even this difference is one of degree. As evidence, Taylor, in support of his scientific approach to management, argued that the specialization resulting from a division of labor could enhance learning and innovation. He believed that workers employed in simple operations would eventually become experts in their areas and could find ways to improve their operations. Upon learning the right way to do the job, they could eventually figure out a way to do it better.

Continuous improvement in TQM begins from this same premise. In other words, for many companies, the first step toward continuous improvement is reestablishing order—getting the system in control by reducing variation. This step can be as simple as asking maintenance workers to label all tools and hang them in labeled categories on a peg board. Once the system is stable and in control, it is possible to learn how to improve it. Small improvements are captured in new standards to maintain stability, and, gradually, these accumulate to produce significant improvements.

What the mechanistic thinkers did not envision, however, was the learning capacity generated by heterogeneous groups. Gulick (1937), for example, argued that nonhomogeneous groups should be avoided because of their inefficiency. TQM, in contrast, embraces the use of cross-functional teams; users recognize the value of constructive contention (Kiernan, 1993) and the potential for recognizing new opportunities when multiple perspectives clash.

Summary of Mechanistic Model—TQM Linkages

Is TQM a 1990s version of the mechanistic model of organizations? It is possible to answer this question in two different ways. First, I believe that some individuals may choose (consciously or not) to apply TQM mechanistically—particularly if they treat it as a set of principles, use the chain of command to audit and control static organizational activities, pay more attention to processes than customers, or place undue emphasis on organizational efficiency. But such an orientation to TQM provides a

limited view of the concept and does not capture fully the intent of most quality experts and promoters.

In contrast, given the clear linkages between the two sets of components, I can easily make the case that TQM is a "spiritual descendent" of the mechanistic model (and particularly of classical management theory). It advances the theory in numerous ways (broader goals, changing roles, learning emphasis), but these "improvements" must incorporate and then expand the attributes of the earlier model. This notion suggests some intriguing ideas for future research on TQM practice.

Implications for Management Research

If TQM builds on certain aspects of the mechanistic model, does this mean that effective application requires organizations to begin with the more mechanistic procedures before moving on to other practices? If so, how does a mechanistic approach to TQM relate to effectiveness? Are purely mechanistic aspects of TQM (e.g., reducing process variation) likely to improve performance more or less than nonmechanistic aspects (e.g., establishing teams)? Is it possible that the practice of managing organizations is an evolutionary process?

By making the links between TQM practice and the mechanistic model explicit, important insights from scientific management and classical theorists are returned to attention. TQM researchers appear to retain some of what was valuable in these approaches while discarding some of their potentially dysfunctional aspects. However, does this connection with mechanistic thought imply that TQM can be only understood as the new "best way" to manage organizations? As the next section reveals, this is a definite point of contention.

TQM AND THE ORGANISMIC MODEL

Some TQM proponents maintain that a common error in the implementation of TQM is the failure to recognize that every company, and every environment, is different (Laza & Wheaton, 1990). To be successful, say these critics, the implementation of TQM must be properly aligned with competitive environments and strategies (Chorn, 1991). They contend that at least part of the current skepticism about the quality movement stems from "its underlying premise that the same set of management practices can be effective for all organizations" (Ernst & Young and the American Quality Foundation, 1992: 7) and argue that reliance on so-called universal practices can explain the mixed results gained by many organizations in using TQM methods.

Each of these challenges to the "principles" approach to TQM calls for aligning or matching TQM implementation to organizational context. This contingent approach to TQM is rooted in the organismic model adapted from von Bertalanffy's (1950) work on general systems theory in biology. In this case, the organization is conceptualized as an organism

whose purpose, survival, can only be ensured by growth. Contraction is believed to be synonymous with deterioration, decay, and eventual death (Gharajedaghi & Ackoff, 1984).

Like living organisms, organizational systems are dependent on their environments for resources, and they can adjust the behavior of their parts to maintain the properties of the whole within acceptable limits (Gharajedaghi & Ackoff, 1984: 292). This view of organizations introduces a new level of systems complexity. On level four of Boulding's (1956) hierarchy, systems are open to the environment. At level five, they form differentiated structures in response to specific external conditions. Because in it organizations are conceived as existing in a largely determinant relationship with their environments, the organismic model appears to fit here (Chaffee, 1985; Smircich, 1983b).

Are there clear links between the organismic model and TQM practice? As the next section will show, the answer is an unqualified yes. A summary of major components will make these connections explicit.

Linking Organismic Concepts to TQM

Goal. Like classical management's mechanistic model, the organismic model assumes that the organization is oriented toward one specific goal and that employees must subordinate their interests to advance the common goal. In this case, however, it is generally assumed that systems goals (i.e., the need to survive) displace performance goals (Thompson, 1967). In the organismic model, profit serves as a means—not an end; profit is important because it helps to ensure the growth and survival of the system (Gharajedaghi & Ackoff, 1984). From this perspective, quality too serves to ensure the survival of the system.

Deming (1982) took this view when he argued that managers must give up their sacred cows (e.g., quick profits) to create constancy of purpose within the organization. He believed that the performance of management must be measured by the aim to stay in business, to protect investment, to earn dividends, and to ensure jobs through the improvement of product and service for the future.

TQM advocates cite the need to survive in a highly competitive marketplace as a primary reason for adoption (cf. Eisman, 1992; Keiss-Moser, 1990). Stories abound of companies that turned to total quality when their backs were against the wall (cf. Carman, 1993). These may say more about the immediate motivation to adopt TQM than about the real goal of the organization. In fact, to Senge (1990), using the threat of survival to induce organizational change represents a negative vision—one that is largely based on fear.

There is a difference between taking action only because survival is threatened and believing that survival is the ultimate goal of the organization. Unlike Deming, who insisted that management has an obligation to keep the company alive for the future, most managers continue to focus on annual performance measures and dividends. As evidence, research-

ers found top executives to be rewarded almost exclusively for financial performance (KPMG Peat Marwick, 1991). Moreover, many companies drop quality programs if these do not improve bottom-line results within a year or two (cf. Bleakley, 1993).

The organismic model assumes that what is best for the long-term survival of the organization is best for its members. TQM can be interpreted this way, but even today, it frequently is linked to bottom-line performance results—a practice more indicative of a mechanistic philosophy than an organismic one.

Definition of quality. The definition of quality in TQM from the customer's point of view is perfectly compatible with the organismic model's emphasis on adaptation. Thus, both perspectives begin with careful assessments of environmental trends and events. In TQM, this means identifying and measuring actual needs of customers and then linking these measures to product design specifications and internal process measures (Kordupliski, Rust, & Zahorik, 1993).

Role/nature of environment. According to the organismic model, the organization is a unit in interaction with its environment. From this view, organizations are not autonomous entities; they are dependent on other social units, which cannot always be controlled or foreseen (Thompson, 1967). Thompson (1967) extended this line of thought, suggesting that an open system of logic permits the intrusion of variables penetrating the organization from outside. He recommended co-opting these variables, that is, bringing them into the organization, to increase control over them. Similarly, Katz and Kahn (1966) proposed that social systems will attempt to incorporate within their boundaries the external resources necessary for survival. Deming's consideration of customers and suppliers as part of organizational processes appears to follow this logic. In effect, Deming allows these so-called external entities to penetrate the organization, a proposition entirely in keeping with organismic thought.

Role of management. Management's role in the organismic model is to act as the brain of the system (Beer, 1981). It gathers information from boundary-spanning units by means of a communication network, and it issues directives to activate and deactivate parts of the system (Gharajedaghi & Ackoff, 1984). Management monitors performance and provides feedback when corrective action is needed.

In organismic organizations, vision replaces fear as a motivator (Burns & Stalker, 1961). To be effective, the vision must be embodied in the policy and structure of the organization (Selznick, 1957). In its capacity as brain of the system, management has traditionally designed the vision and created policies and system parameters to guide employee decision making (Selznick, 1957).

This description of management's role links easily to prescriptions made by TQM advocates. Management's first task, they state, is to create a vision that incorporates TQM as an integral part of the business. Its second task is to establish organizational policies, structures, and

practices consistent with that vision (cf. Fenwick, 1991; Ginnodo, 1992: Scholtes & Hacquebord, 1988). Employees may have a hand in designing these parameters, but most quality thinkers suggest that management should be responsible for synthesizing all of the different processes and people into a cohesive system (Shores, 1992).

Role of employees. In the organismic model, employees do their jobs because they are committed to a common purpose, not out of blind obedience. The growth of shared beliefs about the purpose and values of the organization replaces the hierarchic command system as a means of control (Burns & Stalker, 1961). As a result, employees are given latitude to make appropriate decisions for the particular circumstances they face. In this perspective, then, employees are more like cells than cogs. They define their roles and increase their power by building a network of contacts both within and outside the organization. Thus, they are less easily replaced (Gharajedaghi & Ackoff, 1984).

This increased decentralization within system parameters also is an important part of TQM methods. Eisman (1992), for example, argued that the executive must be committed to the quality process while giving employees the authority to make certain decisions on their own. Employees are "empowered" to make certain decisions on the job, to talk to others as needed to solve problems, and to find new ways of doing their work that will reduce wasted steps or improve quality.

Structural rationality. Whereas mechanistic design emphasizes the chain of command and technical rationality, the organismic model stresses coordination and organizational rationality (Barnard, 1938). It addresses the question of how to organize so that coordinated efforts occur (Scott, Mitchell, & Peery, 1978). To this end, both horizontal and vertical communication networks are established. Information and advice, rather than instruction and decisions, are shared across functional areas and between people of different rank (Burns & Stalker, 1961).

Laza and Wheaton (1990) reflected this organismic approach when they described the attempt to optimize total systems as a critical component of TQM. Instead of a hierarchy, the organization is conceived as a flow of interdependent processes. Scholtes and Hacquebord (1988: 29) contended that this horizontal configuration shapes employee priorities on the job as follows:

> If you ask someone, "In your work, who is it important for you to please?" and if he or she answers "my boss," that person experiences the organization as a chain of command. If the answer is, "The people in the next step of the process, my internal customer, and our external customer," that person has a systems perspective.

As this quotation shows, control in the organismic model, and in TQM, shifts from vertical hierarchies to horizontal process flows. Employees experience greater opportunity for self-control because their jobs

expand from mindless repetition of an isolated activity to thoughtful collaboration on a complete task or process. Still, their freedom to make decisions is limited by the need to act within established system parameters. Control is lodged in task and/or product design, definitions of quality, and performance measures.

Philosophy toward change. A basic assumption in the organismic model is that to survive, the organization must adapt to a broad array of environmental forces. To deal with such complexity, it must develop processes for searching and learning as well as deciding (Thompson, 1967). As Burns and Stalker pointed out in 1961 and Senge reiterated almost 30 years later, the greater the rate and extent of environmental change, the less possible it is for anyone to "figure it all out at the top" (Senge, 1990: 7). Instead, each member of the firm must expand his or her capacity to learn and to adjust to change.

In keeping with this philosophy of continuous learning and improvement, TQM advocates recommend learning strategies ranging from benchmarking and enhanced strategic intelligence to employee training, cross-functional teams, and experimentation. These ideas are consistent with the ability of open systems to maintain structural integrity in the face of varied and changing inputs from the environment. If the organization is to adapt to these inputs, members must seek information from outside the system, examine current assumptions about how to conduct business, develop new concepts for dealing with change, and disseminate this learning throughout the organization (Kiernan, 1993).

Summary of Organismic Model and TQM

Why do practitioners view TQM as a new paradigm, whereas many academics view it as old hat? Based on the comparisons made in this section, I think it is quite clear that many of TQM's revolutionary "new" ideas are derived from systems theory and the organismic model. This model is compatible with the definition of quality in TQM from the customer's point of view, its blurring or organizational boundaries, its emphasis on horizontal work flows, its barrier elimination and cross-functional teams, its use of vision as a motivator, and its commitment to empowering workers (within limits defined by the system).

When the TQM jargon is eliminated, these ideas sound very familiar to academics. After all, the systems perspective has grounded much of the thinking and research on organizations since it was introduced to the management literature in the 1950s. That key components of Deming's quality concept derive from this same model is probably no coincidence given that his work with the Japanese began in that decade. His flow diagram (Figure 1) evokes instant recognition as an organizational system embedded in a broader environment. Moreover, throughout his work Deming explicitly described organizations as systems. Indeed, understanding organizations as systems is one of the four principles of his "System of Profound Knowledge."

Although I have argued that what is supposedly new about TQM can be linked to the organismic model, I also maintain that this practice cannot be understood or applied completely without consideration of its mechanistic roots. That is, TQM practice does not abandon the mechanistic model and adopt the organismic one; instead it contains elements of both. As shown in Table 1, each new organismic component builds on and subsumes a mechanistic principle.

This careful grafting of organismic and mechanistic ideas is supported by systems thinkers. Boulding (1956) posited that higher level systems must incorporate and subsume all of the characteristics of lower level systems. Concerning management systems, Kiernan (1993) paralleled this idea, suggesting that each era has incorporated the attributes of its predecessors and added new and progressively more challenging requirements on top of them.

Implications for Management Research

One apperception that emerges from comparing TQM to the organismic model is that TQM experts, specifically Deming and Juran, have been more successful than academics at generating precise ways of putting systems thinking to use. Given that management academics have been

TABLE 1
Comparison of Organizational Models

Dimensions	Mechanistic Model	Organismic Model	Cultural Model
Organization goal	Organizational efficiency/performance goals	Organizational survival (requires performance)	Meet individual needs/ human development/ (requires system survival)
Definition of quality	Conformance to standards	Customer satisfaction (requires conformance to standards)	Constituent satisfaction (requires customer satisfaction/conformance to standards)
Role/nature of environment	Objective/ outside boundary	Objective/inside boundary	Enacted/boundaries defined through relationships
Role of management	Coordinate and provide visible control	Coordinate and provide invisible control by creating vision/system	Coordinate and mediate negotiations regarding vision, system, rewards; lead by sharing control, demonstrating values
Role of employees	Passive/follow orders	Reactive/self-control within system parameters	Active/self-control; participate in creation of vision, system
Structural rationality	Chain of command (vertical communication)	Process flow (horizontal & vertical communication)	Mutual adjustment in any direction
	Technical rationality	Organizational rationality	Political rationality
Philosophy toward change	Stability is valued but learning arises from specialization	Change and learning assist in adaptation	Change and learning are valued in themselves

acquainted with systems theory and the organismic model for over 40 years, have they missed the boat? And if so, why?

In their article on applications of systems theory, Kast and Rosenzweig (1972: 447) recalled the early enthusiasm generated among management theorists by the organismic model because it promised "relief from the limitations of more mechanistic approaches and a rationale for rejecting 'principles' based on relatively 'closed-system' thinking." For the next 10 to 15 years, academics produced a plethora of books and articles using systems concepts to make sense of organizational activities. By the 1970s, however, the paradigm had lost momentum, perhaps because researchers were not sophisticated enough to be able to translate these understandings into practical applications (Kast & Rosenzweig, 1973). Research in management and organization theory shifted down a level of abstraction to contingency theory—a perspective based on general systems theory that emphasized more specific characteristics and relationships in social organizations (Kast & Rosenzweig, 1973). Contingency views have dominated management theory and research since then.

Ashmos and Huber (1987) noted that the shift to contingency theory has been accompanied by an acceleration of research on organizational environments and a move toward large-sample empirical studies in which the ease of operationalizing constructs drives the decision about what to study. They concluded that complex internal systems relationships have received little attention primarily because such constructs are abstract and difficult to measure. Yet this is precisely where Deming and other quality experts placed their focus. Deming argued that instead of endlessly disputing the proper measurement of environmental uncertainty, top managers must take responsibility for designing and maintaining the total system. He argued against heavy emphasis on short-term financial results and called for more attention to the quality of organizational processes.

One logical conclusion of this line of thought is that management researchers who are interested in expanding knowledge about the process of total quality management in organizations could benefit from reexamining the assumptions and propositions devised by early systems thinkers such as Miller (1978) and Katz and Kahn (1966). Ashmos and Huber (1987) suggested numerous research questions ranging from how organizations deal with the outputs of multiple deciders to how distribution and logistical components of organizations (processes) contribute to or detract from organization efficiency—matters that are clearly relevant to effective implementation of TQM.

Having argued here that TQM could provide an avenue for pursuing the "missed opportunities" for systems research identified by Ashmos and Huber (1987), I now offer a second explanation for academics' ambivalent response to total quality. Perhaps some academics have ignored TQM as a management practice because it does not fit neatly into any one paradigm. Though many of the "new" ideas found in TQM are organic in

nature, they are built on a sturdy base of familiar mechanistic ideas (i.e., variation must be reduced, management principles must be applied, performance goals must be met, and processes should run efficiently). As I noted previously, the idea that higher level systems incorporate the attributes of lower level systems is supported by systems thinkers, but as Chafee (1985) commented, academics have yet to identify these linkages.

This leads to another important research question regarding the effectiveness of the implementation of TQM. TQM advocates disagree about the extent to which all components of the practice must be applied in any given situation. Perhaps the real question is not whether all components are required for success, but whether there is some necessary pairing among elements (i.e., one could speculate that certain organic components of TQM can only have a positive influence on quality if particular mechanistic aspects also have been established). This might explain why work teams can more effectively generate improvements when they are acting on well-defined and stable processes. Similarly, customers are more likely to be satisfied when external measures are linked to conformance with internal quality standards.

Finally, I will offer one last, very different explanation about why some academics reject TQM. As presented here, TQM is a management practice specifying methods reflecting both mechanistic and organismic thought. Researchers who use these models assume that participants subordinate personal interests to those of the organization. Accordingly, there is a high degree of organizational control over individual behavior, whether that control is enforced through the hierarchy, rooted in commitment to vision, or shaped by system parameters. Moreover, in both models it is assumed that managers can manipulate or shape the organizational culture to enhance performance or ensure survival (cf. Barley, Meyer, & Gash, 1988; Smircich, 1983b). Juran (1991: 84), for example, argued that quality management often requires a "good deal of cultural change," which can only be accomplished through the active and personal leadership of top managers. Other writers advise managers to bring culture in line with total quality (Clemmer, 1992) and to instill certain cultural values (Scholtes & Hacquebord, 1988).

It can be argued that these models are too simplistic to capture fully the essence of human organizations. Human organizations obviously differ from organisms in the following fundamental ways: (a) participants hold diverse goals and can choose whether to act in a given situation (Gharajedaghi & Ackoff, 1984) and (b) they are created and maintained by shared symbolic modes. To interpretive theorists, human organizations are not simply economic or material entities; they are systems of shared meaning and symbols (Smircich, 1983a). From this view, culture should be treated as "what the organization is" as opposed to "something that the organization has" (Smircich, 1983b: 387).

Scholars who accept the interpretive view might reject TQM because it is a functionalist ontology. It suggests that following certain procedures

or establishing particular structures will lead to desired ends. Interpretive theorists rarely invoke this causal imagery (Barley et al., 1988). They do not assume that managers can control culture. For these reasons, the cultural model of organizations provides an alternative to the tenets of functionalism (Barley et al., 1988). In the next section I explore this model and provide a counterpoint to more common ways of understanding quality in organizations.

TQM AND THE CULTURAL MODEL

According to the cultural model, the organization is viewed as a collection of cooperative agreements entered into by individuals with free will (Chaffee, 1985). In the interpretive view, which is based on this model, it is assumed that the organization's culture and its social environment are enacted or socially constructed by organization members (Smircich & Stubbart, 1985; Weick, 1979). In essence, culture is described as a metaphor for the shared symbols and meanings of organizational participants.

A rationale for choosing the cultural model as a vehicle for understanding organizations is that human beings are distinguished from all other living species by their ability to create and use symbols both as a basis of discourse and as a means of forging their individual lives (Pondy, Frost, Morgan, & Dandridge, 1983). Shared symbolic systems are an inherent outcome of the communications involved in the social interaction of human beings. These shared symbols allow individuals who work together to gain a unified understanding that facilitates their coordinated action (Smircich, 1983a). Thus, the cultural model of organizations appears to describe the social organizations explained by Boulding (1956) at level eight of his systems hierarchy.

Table 1 describes components of the cultural model of organizations. Comparing these components to TQM practice leads to some interesting questions about the purpose of TQM, its application in organizations, and some rather different directions for research on quality.

Goal. Whereas in the mechanistic model the organization is viewed as a tool to achieve some specified purpose, and in the organismic model, it is a system that needs to survive, in the cultural model, an organization exists to serve the diverse needs of all whom it affects (Gharajedaghi & Ackoff, 1984). This point of view recognizes that organizations are composed of individuals who have their own purposes.

This lack of a single unifying goal appears quite different from the efficiency/performance orientation or customer-satisfaction objectives typically associated with TQM. Instead of subordinating individual interests to common ends, in the cultural model, individual goals must be recognized and respected (Georgiou, 1973; Keeley, 1980). Deming, for example, took this view when he exhorted organizations to remove fear and return self-esteem, dignity, and joy in work to the employee (Aguayo, 1990).

This perspective does not mean that profits are ignored; it does mean that profits may not be the ultimate priority. Ralph Stayer, CEO, explains how this philosophy works at Johnsonville Sausage.

> The key is that people see Johnsonville as a means to their ends, not vice versa. We are not the means to the end of profit. It's the other way around: profit is the means to our ends. Profit is not unimportant. It is the seed corn that makes everything else work. Our increase in profits has allowed us to increase our investments in the business and increase the compensation for our people at the same time. (Johnsonville Sausage)

Definition of quality. This emphasis on respecting individual needs also has implications for the definition of quality. Whereas in the organismic model quality is defined in terms of meeting the customer's needs, in the cultural model quality refers to all organizational constituents. Certainly, customer needs must be served if the organization is to survive, but in the cultural view, equal attention is given to employees and their families, suppliers, communities, and other vital stakeholders.

From an interpretive perspective, quality has many meanings. It is an attribute of the product or service, of the work itself, and of the processes and systems surrounding the work. Balancing these various definitions requires creation of a shared interpretation scheme in which they make sense. Some degree of consensus or shared understanding is needed regarding the organization's values and purposes, its standards of acceptable behavior and outputs, and its means of ensuring a fair distribution of outcomes.

TQM advocates understand this need for consistency of mission, values, and expectations (cf. Simmerman, 1993). They advocate the use of symbols ranging from language and artifacts to ceremonies and celebrations to build a quality culture. Indeed, one of the most effective means of implementing TQM is teaching people to understand the terminology associated with the practice. As organization members master the concepts associated with words like *six sigma, root causes,* and *kaizen,* the way they think about quality is changed.

Cultural transformation, however, requires action as well as thought, and according to Giddens (1986), true action exists only when an agent has the capability of intervening, or refraining from intervening, in a series of events so as to influence their course. When employees combine mastery of quality symbols with the power to use them as they judge necessary, they have the means to change the organization. This is why the cord that some factory employees can pull to stop the assembly line is such a powerful symbol. It not only evokes a shared concern for a superior product, but it also represents the workers' power to intervene in the process to make it so.

Role/nature of environment. Unlike the mechanistic and organismic models, in which the environment is viewed as a real and objective force

acting on the organization, it is assumed in the cultural model that the social environment, like the organization itself, is enacted or created by organization members. Most TQM experts take the former view, assuming that organizations must adapt to the expectations of customers and choose suppliers whose outputs match their technical specifications (cf. Chorn, 1991; Laza & Wheaton, 1990). Interpretive theorists, however, view customer needs and supplier relationships as socially constructed (Burrell & Morgan, 1979; Weick, 1979). Hence, this view encourages organization members to take responsibility for actively shaping customers' expectations, building long-term relationships with suppliers, and making competitive decisions that create (or destroy) supportive industry environments (cf. Toy & Payne, 1992).

Role of management. As noted previously, current TQM practice often casts managers as designers and coordinators of the organizational system (Juran, 1991). This role changes in the cultural model where managers must instead act as leaders, demonstrating shared values and priorities through their actions, and as mediators, resolving disputes and ensuring that a balance exists between individual contributions and rewards.

The most difficult role change for managers often involves relinquishing control and sharing power. Stayer (1990) admitted that when he first tried to empower his management team, he fired three top managers before he learned that he had not really wanted them to make independent decisions—he wanted them to do what he would have done. Semler (1994: 65) told how he had to learn to "swallow hard" and live with occasional democratic decisions that he particularly disliked.

Releasing control should not lead to benign neglect. Effective leadership and mediation require managers to be informed about all aspects of the organizational system. Maintaining the fragile balance of interests and supporting shared meanings require skills in symbolic management (Pfeffer, 1981; Smircich & Stubbart, 1985). Managers must not only reinforce viable symbols of quality, but also listen carefully to diverse participants in order to understand their varied interpretations.

Role of employees. Interpretive theorists believe that employees negotiate meaningful contributions and have a voice in establishing organizational goals and system parameters. Again, these roles go beyond current TQM practice, which expands employees' roles within a system created and maintained by management (Juran, 1991).

Structural rationality. The cultural model is based on political rationality, whereby all structural decisions are value based and have clear implications with regard to "the autonomy felt by individual members, the allocations of status, privilege, and scarce resources, . . . and the ability of individuals to determine the salient goals of the organization" (Scott et al., 1978: 135).

At present, TQM proponents have not questioned the values underlying prescribed practices. Most authors take for granted the rights of managers to demand a change in the organization's value structure; they

view resistance to new values as an obstacle to overcome and prescribe tactics (cf. Scholtes & Hacquebord, 1988). From the point of view of the cultural model, however, changes in values should be acknowledged and openly discussed. Political rationality requires management to bring background assumptions about power, control, and rewards into the open; it requires freedom of speech, autonomy, equity, and conviviality for all organization members (Aktouf, 1992).

Philosophy toward change. Intelligent and informed debate both require and foster human growth and development. Development is the process by which individuals increase their abilities and desires to satisfy their needs, their legitimate desires, and the needs and desires of others (Gharajedaghi & Ackoff, 1984). It occurs at the individual level. Organizations cannot develop people; they can only encourage and facilitate such development.

Gharajedaghi and Ackoff (1984) argued that the essential purpose of organizations is the development of all organization members. This view incorporates the learning emphasis associated with the organismic model and expands it in an important way. Organismic learning is based on the need of the organization to adapt to a broad array of changing environmental forces. To this end, local learning processes in the face of changing circumstances facilitate adaptation of the larger system. From an interpretive perspective, however, the key is not adaptation but creation, and the learning need not occur in response to system needs but instead is sought freely by individuals. Thus, local learning processes involving both change and stability combine to yield new meanings at both individual and organizational levels.

As I have tried to show throughout this section, according to the interpretive perspective, the processes by which organizational members create organizations and environments are emphasized. Human beings are viewed as purposeful actors who create their worlds by building relationships, negotiating roles, debating values, and finding new ways to transform resources. Creation of new meaning is therefore rooted in the mundane daily affairs of all organizational members (Strauss, 1978). It is greatly enhanced through freedom of choice (Gharajedaghi & Ackoff, 1984), and it is restricted through the limitation of alternatives.

TQM, in contrast, may restrict individual activities and choices to those which support stated organizational ends. Even though TQM may provide greater freedom of action than mechanistic management practices, it actually may reduce freedom of choice by submitting employees to "awareness training" designed to "create a common frame of reference" and to skills training aimed at establishing preferred ways of solving problems and working with teams (Olian & Rynes, 1991).

Summary of Cultural Model and TQM

When viewed as a set of procedures or tools, current TQM practice appears to have little in common with the cultural model. As a method-

ology, TQM is essentially a functionalist doctrine that structures individual behavior to fit the demands of the larger system. Interpretive theory, in contrast, has gained support mainly among academics who reject the tenets of functionalism (Barley et al., 1988: 53). Because TQM practice has been developed mainly by practitioners who have yet to abandon the functionalist ontology (Barley et al., 1988: 53), differences among these perspectives are expected.

When viewed as a philosophy or cultural change, however, TQM has much in common with the cultural model. Adherents of the cultural model do not reject TQM principles; instead, they point to the need for open discussion of the ends to which these principles will be used, the measures selected to judge the application of these principles, and the distribution of benefits derived from the use of these principles. Interpretive theorists do not reject control over individual behavior; indeed, they recognize that by definition culture is a form of control (Barley et al., 1988). Knowing this allows individuals to make intelligent choices about behaviors and values that may have the potential to satisfy both individual and organizational needs. Thus, in this case, individuals must take responsibility for creating and maintaining organizational and competitive conditions that support continued survival. Informed debate on these choices both requires and fosters human growth and development. Developed employees, ultimately, have potential to make more of the limited resources that are available by generating creative solutions, alternative inputs, or better technologies.

Therefore, TQM may be viewed as a choice that may be made by organization members who wish to cooperate with others to improve the quality of both their products and their lives. Choosing to limit one's behavior in agreed-upon ways may be like choosing to sing on key in a choral group; the benefits of a harmonious process may make the choice worthwhile.

Implications for Management Research

Interpretive research draws attention to the processes through which meaning is understood and created in organizations (Smircich & Stubbart, 1985). Because culture is conceived as a pattern of symbolic discourse, understanding it requires researchers to learn to interpret or decipher it from the participants' point of view (Smircich, 1983a). First, they must identify and link patterns of symbols and recurrent themes to beliefs, values, and attitudes. Second, they should learn how such an understanding can lead to coordinated action (Smircich, 1983a).

Quality experts claim that TQM is a philosophy that must become part of the organizational culture. Yet an organization's culture does not necessarily reflect an organizationwide consensus (Martin, 1992). The meaning and value associated with quality processes and outcomes may vary across functional areas or by hierarchical level. Consensus may appear to emerge on certain quality dimensions only to evaporate as

certain interests are threatened. Interpretive researchers could use an ethnographic approach both to examine the behavior of all organizational participants and to look for clues concerning the meaning of quality from multiple points of view. By observing what members spend their time on, what kinds of data are tracked, what subjects are discussed at key meetings, what criteria influence funding and reward decisions, and what issues take precedence when "the heat is on" (Harwood & Pieters, 1990), they could gain a better understanding of the value placed on quality relative to other issues and the extent to which the members agree on the priority given to quality.

Interpretive researchers also would have many opportunities to examine the process of meaning creation in TQM. For example, when TQM concepts are applied, preconceived notions of organizational boundaries are assaulted. In this case, organization members must acquire new definitions regarding the "lines" between *inside* and *outside* and between *us* and *them*. Naturalistic inquiry allows researchers to observe the development of these concepts, as relationships are tentatively explored and connections established. As part of this process, researchers could give attention to the extent to which new partners share information and design processes and conduct joint planning. Moreover, if they study the means by which suppliers and customers reach their findings, agreement on what constitutes acceptable quality could prove insightful.

Within organizations, participants in TQM will introduce new symbols and terms to the corporate lexicon. Common symbols such as fishbone diagrams and flowcharts have potential to change the way organizational members approach problems and understand organizational issues. Terms such as *internal customer* may reshape members' ideas not only about the relevant organization of work teams, but also about the purpose and importance of their tasks. By observing whether these concepts generate intended meanings or take on unexpected connotations, researchers also could help to explain the influence or lack of influence exerted by TQM practice.

Finally, interpretive theorists may wish to explore the links between the conceptual frameworks (mental models) held by members who are implementing TQM practice. By conducting interviews with TQM implementers, researchers may discern the rationale behind members' choices as well as the values these choices entail.

CONCLUSION

In this article, I have examined TQM in relation to three diverse models of organization. In doing this, I learned that although many of the new ideas regarding TQM practices are associated with organismic concepts, ample evidence of mechanistic influence also exists. Deming's work, in particular, seems to graft mechanistic and organismic concepts into a coherent whole. Even though I pointed out these linkages, I also

argued that in practice TQM does not describe an objective reality but instead depicts a somewhat amorphous philosophy. Managers who are comfortable with mechanistic concepts may be more apt to enact the mechanistic components in TQM. Systems thinkers may be more comfortable with its organic elements. The cultural model highlights the philosophical components of TQM and is most useful for evaluating the enactment process. It calls attention to the value judgments that underlie various choices in TQM, from the design of structure to the purpose of organizations.

While using these models to explore TQM, I made an unexpected discovery: the study of TQM can teach researchers more about the existing management models. For example, the mechanistic model is generally presented in a negative light (e.g., Perrow [1973] equated mechanistic thought with the forces of darkness). Yet Deming (1982, 1986) placed great emphasis on reducing variation—a mechanistic idea. Like Fayol and others, he viewed management in terms of principles, implying that there may yet be some basic components of effective operation in all organizations. Perhaps more consideration of these ideas is warranted.

Systems theory is another perspective that has been out of favor for some time. TQM may provide a good vehicle for exploring the concepts of open systems and for helping researchers to learn more about cross-level relationships in organizations (Ashmos & Huber, 1987). When theorists attempt to study the properties of social systems, however, they also must attend to the lessons of the cultural model. This model forces organizational researchers to make implicit values explicit and to recognize that individuals, as well as organizations, have purposes that warrant consideration.

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