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AUTHOR	Clarke, Anthony James
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Anthony James Clarke

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Core Faculty Advisor: Elliot Robins, Ph.D.

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Quality Management Practices and Organizational Knowledge Management: A Quantitative and Qualitative Investigation

By

Anthony James Clarke

Baccalaurate Degree: United States Military Academy (Institution) May 1983 (Date)

Master's Degree: University of Chicago (Institution) August 1993 (Date)

A Project Demonstrating Excellence Approved on:

_____
Date

by the following Doctoral Committee members:

First Core _____

Adjunct _____

Adjunct _____

By the Dean of the Graduate College:

Dean _____

Graduate College
Union Institute & University
Cincinnati, Ohio

ABSTRACT

Keywords: quality management, knowledge management, organizational context

This research used a quantitative and qualitative methodology to study the relationship between quality management and knowledge management practices in for-profit companies. Three quality management practices were examined – leadership, training and process control. Leadership practices related to top management's role in an organization's quality management efforts. Training was defined as the extent to which an organization emphasized training within its quality management efforts. Process control related to the extent to which an organization directed its quality management efforts towards controlling internal processes. Knowledge management was divided into structural and behavioral approaches. Knowledge management structural approaches were defined as practices where an organization used information systems and other tools to capture and disseminate knowledge. Knowledge management behavioral approaches were defined as practices where an organization emphasized social interaction to share knowledge.

The theory behind this research was twofold. First, the use of organizational approaches to knowledge management is influenced by an organization's context. In this research quality management was studied as the organizational context for the use of knowledge management approaches. Second, quality management and knowledge management can be divided into control or structural approaches and behavioral approaches. It was hypothesized that companies that employ quality management control practices would use knowledge management structural approaches. Conversely it was hypothesized that companies that use quality management behavioral practices would

employ knowledge management behavioral approaches. All correlations between quality management practices and knowledge management approaches were found to be positive and statistically different than zero. The correlation between knowledge management structure and quality management process control [.58] was found to be statistically different than the correlations between knowledge management structure and quality management leadership and training. The qualitative interviews yielded results that supported the existence of all correlations and aided in their interpretation.

Overall it was determined that there is some correlation between quality management practices and knowledge management approaches. For managers in quality management companies this research suggested that the clearest path to successful knowledge management is by linking the firm's process control activities to the implementation of structural and behavioral approaches to knowledge management.

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Chapter One: Introduction

Background

Business leaders are under a constant barrage of new concepts and programs for improving organizational performance. Abrahamson and Fairchild (1999) traced the lifecycle of management fashion beginning with a largely emotional appeal for the initial adoption of a new program through its implementation with varying degrees of success to a more critical evaluation that preceded a decline in usage. In an effort to differentiate new concepts, proponents of new initiatives engaged in "enthralling rhetoric (to) loosen the grip of past practices and open many organizations and their managers to new management approaches" (p. 715). Managers that did not adopt new programs risked being seen as ignoring new techniques that were "at the forefront of rational management progress" (p. 711). However managers that constantly heeded the call to adopt new initiatives by "starting over" ran the risk of appearing indecisive and alienating organizational stakeholders, in particular, their employees who bear the brunt of organizational change (p. 737).

An alternative to the need to "start over" with each new initiative is to build upon existing initiatives. To maintain continuity managers can base their new efforts on the competencies and capabilities that currently exist within their organization. To do so, however, requires some understanding of the relationship between established organizational efforts and emerging concepts (Duck, 1993; Euske & Player, 1996; Hammer, 2002).

The contrast between starting over and building upon established capabilities is evident in the current adoption of knowledge management. Since the early 1990s

organizational learning and knowledge management have been increasingly recognized as sources of competitive advantage for firms. A common claim for knowledge management and organizational learning is that they will be *the* source of competitive advantage in today's business climate. Drucker (1991) called the raising of knowledge and service worker productivity as the chief economic priority and most pressing social challenge for developed countries. Senge (1990) claimed that learning organizations will be "the organizations that truly excel in the future" (p. 4). Kogut and Zander (1992) stated that if there are no barriers to entry then competition is based on "the comparative capabilities of firms to replicate and generate new knowledge" (p. 393).

To avoid starting over when implementing knowledge management, managers must recognize the relationship between knowledge management and current competencies. The competency-based model of the firm views organizations as a collection of competencies that can be developed, maintained, combined and discarded to create competitive advantage (Prahalad & Hamel, 1990). Under the competency-based model new concepts such as knowledge management may employ the same competencies as current initiatives. These competencies form the basis for the implementation of shared practices within current and future initiatives. Companies that recognize the practices that are shared between current and new concepts will use their resources more effectively and efficiently. By using shared practices as a foundation, companies can base the implementation of new concepts upon current practices.

Purpose of the Study

The purpose of this study was to examine the possibility of statistically significant relationships between quality management practices and knowledge management approaches as perceived by managers and employees in for-profit companies. Quality management, also referred to as Total Quality Management (TQM) or Total Quality (TQ), is a recognized management philosophy that applies approaches, tools and techniques to improve organizational performance. This research will study quality management as the source of current practices that can serve as the foundation for knowledge management in organizations.

Research Question

The overall research question was: How does the use of selected quality management practices correlate with the use of organizational approaches to knowledge management in for-profit companies? The results would provide direction for quality management companies that want to implement knowledge management initiatives. The study used a survey of managers and employees allowing for a correlation analysis to examine statistically significant associations between quality management practices and knowledge management approaches. The quantitative results were used as the basis for qualitative interviews to obtain additional perspectives from managers and employees.

Significance of the Study

This research is important for managers of quality management companies that want to establish a knowledge management capability or improve their existing knowledge management capabilities. By developing a deeper understanding of the relationship between quality management and knowledge management, managers can focus their efforts on practices that show the most promise for building competitive knowledge management competencies.

Many companies are pursuing knowledge and learning activities to stay competitive. Many of these same companies have established quality management efforts. If the nature of the relationship between quality management and knowledge management can be uncovered, these companies can build a competitive knowledge and learning capability without starting over. They can build upon their quality management foundation by leveraging current quality management practices to share knowledge.

Companies gain by not wasting resources through the abandonment of current initiatives and by adopting a more even-handed approach to change and to building new capabilities. Managers will increase their credibility as employees will be able to see the linkage between new initiatives and current efforts (Euske & Player, 1996). Employees will see a natural progression as the company builds upon current initiatives to create a new capability for the future. Organizations will experience less waste; and employees will experience less burnout, skepticism, fear and cynicism (Abrahamson & Fairchild, 1999; Beer, Eisenstat, & Spector, 1990; Dean, Brandes, & Dharwadkar, 1998; Duck, 1993; Hammer, 2002; Schaffer & Thomson, 1992, Schein, 1993). The financial, time, emotional, and resource savings can be significant.

Limitations and Delimitations of the Study

This study had some clear limitations. Many of these limitations stem from the population studied and the conduct of the survey. The population consisted of managers and employees in for-profit organizations across industries and levels within organizations. Thus, some clear limitations of this study's generalizability are:

1. The survey did not limit participation by industry. Some variability may have been introduced by different industry perspectives.
2. The breadth of the population includes people at different levels within organizations. These people may have different perspectives of how their company operates. This may add to the variability of the results.
3. The survey was anonymous and only type of organization and size of organization were collected as demographic data. A more segmented quantitative analysis based on the knowledge of other demographic categories may have yielded different results.

Another limitation of this study is due to the chosen methodology. Even a strong statistically significant correlation does not address causation. A practice and an approach could be statistically correlated without any cause and effect relationship. Although the statistically significant correlations that were found suggest that quality management practices and knowledge management approaches relate to one another, one cannot say that one causes the other. This was evident in the interviews where participants described reciprocal causality. Interview participants described the same correlation with quality management being the independent variable as others described with knowledge management being the independent variable.

My choice of a quantitative approach as my dominant method is also a limiting factor. Although this provides data for statistical analysis, the analysis is based upon participants' perceptions of what practices and approaches the organization is using. The interpretation of high and low usage is not ironclad.

The number of interviews is another limitation. Since the qualitative approach was the less-dominant design, the number of interviews was deemed to be sufficient for exploratory research. The interviews provided a deeper understanding of the quantitative data, but further qualitative study of this relationship would be beneficial.

Finally the study did not evaluate the effectiveness of the use of the quality management practices or the knowledge management approaches. Organizations will have varied degrees of success with the implementation of quality management practices and knowledge management approaches. This may affect the participants' perspectives of the usage of the practices and approaches.

Any or all of these limitations could be enough for a person to decide that these results are not relevant to their own situation. Perhaps they are not practicing quality management. This is a real concern. This study is a snapshot in time of the participants' assessment of usage, which has been used to study correlations between quality management practices and knowledge management approaches. It provides data to add to the quality management and knowledge management bodies of knowledge. Its usefulness goes beyond the limitations listed above but it is up to the individual manager to determine how much.

The most important delimitation for this study was that the population only included managers and employees in for-profit organizations. Non-profit and government

organizations were not included in the study. Since convenience sampling was used the population for this study was also initially limited to individuals on the researcher's contact list and the contact list of the researcher's employer, a local community college. Although the contact lists contained a good mix of organization by type and size, the geographic location tended to be in the area of greater Cincinnati, Ohio. Subsequent contacts did broaden the list to a few other states although the exact location of each participant is not known. Finally the survey was conducted on line and participants needed an active e-mail address to participate.

Definitions of Terms

For this study several terms must be defined. In the field of quality management Reeves and Bednar (1994) defined quality in many ways. They noted that the most widely accepted definition of quality is meeting and/or exceeding customer expectations. In this study the terms quality management, Total Quality Management and Total Quality were accepted as terms that defined the same construct and are used interchangeably. This study used the term quality management unless the cited author or work used one of the other terms. This study's definition of quality management was a set of practices used by an organization to meet or exceed customer expectations and to continuously improve its capability to do so.

This research divided quality management into control-oriented practices and behavioral practices. Control-oriented quality management practices were defined as the tools and techniques that use quantitative problem-solving and statistical tools to solve problems. They have their roots in the belief that an objective analysis of the facts will lead to the solution of the problem. Behavioral quality management practices emphasize

the human element in problem solving. The behavioral side of quality management focuses on employee involvement, cross-functional communication and teamwork to solve problems.

In the field of knowledge management an authorative definition of knowledge was beyond the scope of this study. This study focused on knowledge in organizations and defined knowledge management as how an organization uses its intellectual assets to gain competitive advantage. Intellectual assets are the explicit intellectual material within an organization as well as the knowledge and learning that is shared between individuals, groups and their actions. A knowledge management system was defined as the interrelated processes and norms that shape how an organization employs structural and behavioral approaches to build, maintain and use its intellectual assets to gain competitive advantage.

Knowledge management was also separated into structural and behavioral approaches. Structural approaches treat knowledge as an object and attempt to capture knowledge for future use and to know where knowledge resides in the organization. Structural approaches would include best practices databases, organizational directories of experts, and management reports that are available to employees.

Knowledge management behavioral practices related to the degree that the organization managed its knowledge through behavioral approaches such as laying out the facility, communicating strategy, and enabling people to work together. Examples included holding special events that enable people to come together to share ideas, having the technology tools to connect people with each other, designing facilities with meeting spaces, and recognizing employees' knowledge as a source of competitive advantage.

Here knowledge is treated as a process and human interaction is the source of new knowledge. The goals are to allow knowledge to be freely shared so it can move to the people that need it and to allow new knowledge to emerge through the serendipity of people meeting each other and sharing their ideas.

Some terms needed to be defined outside of the fields of quality management and knowledge management. Organizational context was defined as the total environment in which an organization exists that influences organizational choices. It includes an organization's competitive strategy, industry setting and corporate culture (Earl, 2001) Shared practices are practices that are shared between current concepts and new concepts. For this study shared practices were practices that are shared between quality management and knowledge management.

Two theories need to be defined as they were critical in establishing knowledge's role in a firm's strategy. Under the resource-based theory of the firm, firms "possess very specific resources, competencies and capabilities" (Spender, 1996) that allow it to take strategic action. Strategy is the organization's plan of action through which an organization intends to achieve its goals (Daft, 2003). Strategic action therefore is the specific actions that the organization takes when implementing its strategy. Thus the resource-based theory of the firm sees an organization's ability to take strategic action to accomplish its goals as based upon its unique set of resources, competencies and capabilities. In academic research the resource-based theory of the firm was augmented by a knowledge-based theory of the firm (Decarolis & Deeds, 1999). In the knowledge-based theory of the firm, knowledge is the firm's most strategically important resource. Thomas, Sussman and Henderson (2001) describe the key to sustainable competitive

advantage as "the firm's ability to bundle critical resources in such a way at to distinguish its knowledge base in particular areas" (p. 331).

Overview of Chapters

After this introduction Chapter Two provides a review of the quality management and knowledge management literature. Based upon the literature review a theoretical framework for the study is presented and the hypotheses are discussed. Chapter Three covers the research methodology including the research design and the quantitative and qualitative methods used to collect the data. Chapter Four discusses the quantitative analysis of the data and the analysis of the supporting interviews with survey participants. Chapter Five chapter concludes with the contribution of the study to both academic research and practitioners.

Chapter Two: Literature Review

This literature review concentrates on the identification of generally recognized quality management practices and the identification of generally recognized approaches to knowledge management. To identify these practices and approaches a review of the literature on quality, quality management, knowledge, organizational learning and knowledge management was required. ABI/Inform Research, Business Source Premier, JSTOR and FirstSearch WilsonSelectPlus databases were used to search the literature. The literature review also included the most widely recognized books by quality management and knowledge management experts and a widely acclaimed documentary, *If Japan Can, Why Can't We?* (Dobyns & Frank, 1980).

Quality

Quality is an ambiguous and multi-faceted term. The quality management thought leaders differed on definitions and, given quality management's birth and rise in the world of practitioners, a single generally recognized definition has not emerged though there are some themes that exist when defining quality.

Crosby (1979) offered a definition of quality and quality management. Crosby quite simply defined quality as "conformance to requirements" (p. 17). He defined quality management as "a systematic way of guaranteeing that organized activities happen the way they are planned" (p. 22).

Ishikawa (1985) used the term company-wide quality control. The "company-wide" term was significant for Ishikawa as he emphasized that everyone in the company must practice quality control. Ishikawa had two interpretations of quality.

> Narrowly interpreted, quality means quality of product. Broadly interpreted, quality means quality of work, quality of service, quality of information, quality of process, quality of division, quality of people, including workers, engineers, managers, and executives, quality of system, quality of company, quality of objectives, etc. (p. 45)

Juran (1999) offered a more nuanced view of quality. He defined quality as having two definitions that work in opposite directions. The first definition was "those *features of products* which meet customer needs and thereby provide customer satisfaction" (p. 2.1). In this view of quality "providing more and/or better quality features usually requires an investment and hence usually involves increases in costs. Higher quality in this sense usually 'costs more'" (p. 2.1).

At the same time Juran (1999) saw that quality could also mean "*freedom from deficiencies* - freedom from errors that require doing work over again (rework) or that result in field failures, customer dissatisfaction, customer claims, and so on" (p. 2.2). In this view of quality "the meaning of quality is oriented toward costs, and higher quality usually 'costs less'" (p. 2.2).

Juran's (1999) appreciation for multiple views of quality was echoed in other treatments of quality definitions. Spencer (1994) and Reeves and Bednar (1994) recognized the multiple meanings of quality. In the spirit of Ishikawa's definition Spencer noted, "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" (p. 463).

Reeves and Bednar (1994) provided the most comprehensive review of quality. They identified and analyzed four primary definitions. Quality is: (a) excellence; (b) value; (c)

conformance-to-specifications; and (d) meeting and/or exceeding customers' expectations. They noted that conformance-to-specifications prevailed as the most prevalent view of quality until the middle of the 20th century when Juran introduced his dual perspective. Since that time they found that meeting and/or exceeding customers' expectations was the "most pervasive" (p. 423) definition and "the most relevant for consumers" (p. 435). Still they close by stating, "We believe that such a global definition (of quality) does not exist and that different definitions of quality are appropriate in different circumstances" (p. 440).

Quality Management

In the practitioners' world quality management is recognized as a body of knowledge that has grown into acceptance over the last 25 years (Gabor, 2000; Main, 1994; Stewart, 1999). Unfortunately, although practitioners recognize quality management as an existing field of expertise, the exact definition of quality management will vary from practitioner to practitioner. This has inhibited quality management's emergence as a suitable field of study for scholarly research.

Quality management's heritage can be traced to Egyptian papyrus scrolls that had written quality specifications (Juran, 1995b). Juran (1995b) followed the history of quality management from Ancient Egypt through the village marketplaces and guilds of the Middle Ages to the Industrial Revolution and the rise of international commerce to the current global marketplace.

In the 20th century quality management's heritage can be traced along two tracks – a technical or control-oriented approach to quality and a humanistic or a behavioral approach to quality. On the technical side, scholars point to Frederick Winslow Taylor's

(1998) work in improving organizational productivity, first published in 1911. Taylor's work was extremely influential in the development of quality in the United States. Taylor's drive to break jobs into discrete tasks spawned the growth of inspection departments that later evolved into quality control and quality assurance departments (Juran, 1995b). Close behind Taylor most quality management advocates trace their statistical heritage to Walter Shewhart's work with the Western Electric Company where he developed control charts as a tool to help workers identify unwanted variation (Grant, Shani, & Krishnan, 1994; Juran, 1995b; Main, 1994). The continued application of quantitative and planning techniques to solve management problems was fueled by the military's effort during World War II (Daft, 2003). The need to move men and machinery on a global scale required the development of increasingly sophisticated tools. From these efforts, management science emerged as a new field for management study after the war (Daft, 2003). It strove to solve management problems through the application of mathematics, statistics and other quantitative techniques. Operations research, a subfield of management science, also grew into a field of study after the war (Daft, 2003). It focused on building mathematical models to solve management problems. Operations researchers developed Program Evaluation Review Technique (PERT) and Critical Path Method (CPM) in the 1950s to manage complex projects for industry and the military (Heizer & Render, 2006). Management science shifted into the business world through operations management (Daft, 2003, Heizer & Render, 2006). Here managers of production and later service operations used mathematical models to forecast future demand, manage inventory, optimize schedules and address other management problems. The continued sophistication of planning and quantitative