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Implementation of Deming's style of quality management: An action research study in a plastics company

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Abstract

Using seven constructs and four propositions to describe relationships among the constructs, Anderson et al. [1994. A theory of quality management underlying the Deming management method. *Academy of Management Review* 19(3), 472–509] articulated a theory underlying Deming's style of quality management (Deming's 14 points). Subsequently, two studies, Anderson et al. [1995. A path analytic model of a theory of quality management underlying the deming management method: preliminary empirical findings. *Decision Sciences* 26(5), 637–658] and Rungtusanatham et al. [1998. A replication study of a theory of quality management underlying the Deming management method: insights from an Italian context. *Journal of Operations Management* 17, 77–95], examined the four propositions underlying the theory, and provided a strong support to the theory. To date no one has examined if there is a gap between theory and practice of Deming's style of quality management. This action research describes how Deming's style of quality management is implemented in a plastics company. In doing so, we find that the theory appears to be generally applicable in describing the implementation experience. We provide qualitative explanation and support to two propositions, one of which was only partially supported by both Anderson et al. [1995] and Rungtusanatham et al. [1998] studies. We also find some evidence of new relationship between the two constructs and discover the limiting nature of one of the constructs.

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1. Introduction

Anderson et al. (1994) articulated a theory underlying Deming's style of quality management. In developing the theory, their study identified seven constructs underlying Deming's 14 points.

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The constructs are: Visionary Leadership, Internal and External Cooperation, Learning, Process Management, Continuous Improvement, Employee Fulfillment, and Customer Service. Using the constructs, they specified four propositions to show the relationships among the constructs. To explain the effectiveness arising from adopting Deming's approach, Anderson et al. (1994, pp. 479–480) succinctly stated the essence of the propositions as:

... leadership efforts toward the simultaneous creation of a cooperative and learning organization to facilitate the implementation of process-management practices, which, when implemented, support customer satisfaction and organizational survival through sustained employee fulfillment and continuous improvement of processes, products, and services.

Continuing the theory development process, two studies, Anderson et al. (1995) and Rungtusanatham et al. (1998), examined the four propositions and provided strong support to the theory underlying the Deming's style of quality management.

To date, no one has examined a possible gap between theory and practice of Deming's style of quality management. In other words, the difference in what this model describes and what actually happens when Deming's style of quality management is implemented in a real world setting. The purpose of this research is to describe how Deming's style of quality management is implemented in a plastics company. In doing so, we find that the theory is generally applicable in describing the implementation experience. We provide qualitative explanation and support to two propositions, one of which was only partially supported by both Anderson et al. (1995) and Rungtusanatham et al. (1998) studies. We also find some evidence of new relationship between Internal and External Cooperation and Learning constructs, and discover the limiting nature of the Internal and External Cooperation constructs. It is important to note that this research is not a formal test of the theory; however, the implementation experience provides an empirical basis to further the theory development process started by Anderson et al. (1994).

In the next section, we present Deming's 14 points and the seven constructs of the theory underlying the 14 points, including four propositions describing the relationships among the constructs. In Section 3, we discuss the methodology of the study. In Section 4, we organize our implementation experience around two of the four propositions. Lastly, we provide conclusions from our implementation experience and discuss implications for the theory including direction for future research.

2. The Deming model of quality management

W. Edwards Deming's approach to quality management and his impact on the quality management movement is well known (e.g., Walton, 1986). Almost all introductory textbooks on Operations Management (e.g., Reid and Sanders, 2005) have a detailed discussion on Deming and his philosophy of quality management. Over the years, academics have included Deming's approach to quality management in their research efforts (e.g., Lo and Yeung, 2004; Lai, 2003). According to Rungtusanatham et al. (2003, p. 918), Deming and his legacy are memorialized in various forms. They include:

The *Deming Prize*, Japan's national quality award which inspired the creation of the Malcolm Baldrige National Quality Award in the US.

The *Deming Electronic Network*, an electronic mail network formed by the spontaneous convergence of various groups, nationally (e.g. Wisconsin, California, Georgia) and internationally (e.g. the UK, France, Russia, etc.), and dedicated to the study of Deming's teachings.

The *Deming Cooperative*, an Internet World Wide site to disseminate information related to Deming and his teaching.

The *W. Edwards Deming Institute*TM, a non-profit organization dedicated to promoting Deming's quality management philosophy.

Deming's style of quality management is delineated in several of his writings (Deming, 1975, 1981–82, 1986, 1990a). His style of quality

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