

# The Deming Philosophy of Management: Causes of Its Difficulties and Failures

Dr. Tony Polito, East Carolina University, Greenville, NC  
Dr. George Audi, Ohio University, Athens, OH

## ABSTRACT

The population of Deming subject matter experts (SMEs) were surveyed in order to determine their beliefs regarding the causes of implementation difficulties and failures associated with Demingistic principles. The results indicate an informal conclusion that management, especially senior management or corporate leadership, represent the most common root cause of such difficulties and failures. This finding is, in general, in keeping with Deming's posture that the commitment of leadership is requisite to successful quality management.

## W. EDWARDS DEMING

W. Edwards Deming is regarded by many individuals as the most important and influential management philosopher since Fredrick Taylor. Deming's perspective on management is almost totally contrary to that of common practices of Western management and that of business school curriculum. Deming argued such practices and curriculum are a path to poor quality, higher customer dissatisfaction, higher costs and lower profits. He is widely credited as the individual most influential in the economic recovery of post-World War II Japan as well as the rise of quality as a operations technique and a management philosophy during the late 20th Century; many statements to that effect can be found in print, comments within Bean (1985), Dixon (1987), Kusumoto (1987), Lazzareschi (1993) and Milstein (1992) are exemplars. In 1980, a year in which the per capita gross national product in the United States, once first in the world, had fallen to seventh place, an NBC broadcast *If Japan can, why can't we?* highlighted Deming's teachings. Thereafter, Deming's advice was avidly sought in America; he consulted regularly at Ford, and at GM as well. In 1986, Deming authored *Out of the crisis* (1986) to warn Western managers as to the causes and severity of the decline in their economy. In 1991, Deming developed within his final book *The new economics for industry, government, education* (1994), his System of Profound Knowledge, which he called "a comprehensive theory for management, providing the rationale by which every aspect of life may be improved."

Dr. Deming and his philosophy have been honored and respected worldwide. The Second Order Medal of the Sacred Treasure was bestowed on Deming by Emperor Hirohito for his contributions to Japan's economy. In 1950, Japan's highest national award for quality, named the Deming Prize, was established by JUSE, the Japanese Union of Scientists and Engineers. The main lobby of the Toyota headquarters building in Tokyo is today still dominated by three portraits, one of the company's founder, the second of its current board chairman and the third, and largest, of Dr. Deming. In 1983, Deming was elected to the National Academy of Engineering. In 1985, Deming began lecturing at Columbia University under the title of Distinguished Visiting Scholar. In 1986, he was inducted into the Science and Engineering Hall of Fame. Also in 1986, Deming received the National Medal of Technology from President Reagan "for ... his advocacy to corporations and nations of a general management philosophy that has resulted in improved product quality with consequent betterment of products available to users as well as more efficient corporate performance." Shortly thereafter, Deming received an award for his "Distinguished Career in Science" from the National Academy of Sciences. In the early 1990s, Newt Gingrich lectured on the value of Deming methods, finding that they would be "one of the five pillars upon which American civilization would be renewed in the 21st century." In 1995, the American Statistical Association established the Deming Lecturer Award in honor of Deming's accomplishments. The cover story of the April 22, 1991 edition of *U. S. News and World Report* gave even greater weight to Deming's significance when it discussed the "nine hidden turning points in human history;" the ninth turning point was Deming's fathering of the Japanese quality revolution, and the magazine called him "a turning point of business history made flesh." President Bill Clinton, in a July 1993 Chicago speech on the future of the American workplace, named a book about Dr. Deming and his philosophy as one of three, that, if read by every worker, would vastly improve the productivity of America. And in 1999, the American Management Association included in its list of "The 75 Best Management Decisions Ever Made" that of Toyota's acceptance of Deming's advice.

## CALLS TO RESEARCH

The abundance of anecdotal support, astride the absence of significant academic research regarding such a revered topic as Deming's philosophy, effects a compelling call to some type of research of the topic. Indeed, one call for research into the Deming prescription found in the literature is based on this exact argument:

“Despite the apparent effect that the Deming management method has had on the practice of management around the world, there is little empirical research support for its effectiveness beyond anecdotal evidence. ... Academic attention on the Deming management method has, in fact, been surprisingly sparse. ... Other researchers are encouraged to critically examine the Deming management method approach to quality management.” (Anderson, Rungtusanatham, & Schroeder, 1994)

Other statements in the literature that identify this gap between anecdotal success and rigorous research further contribute to a call for scientific study of the Deming prescription:

“Despite the paucity of scientific evidence attesting to the effectiveness of W. Edwards Deming's quality management approach ... it has received considerable attention from manufacturing and service organizations around the world.” (Rungtusanatham, Forza, Filippini, & Anderson, 1998)

“There is also general agreement, however, that Deming's approach and related TQM methods lack an emphasis on careful analysis ...” (Saunders & Saunders, 1994)

“In parallel to this trend among practitioners [ to adopt total quality management practices] ... a plethora of prescriptive quality management literature has also emerged ... each [ guru] identifies a set of 'key practices' ... [ such as ] Deming's Fourteen Points. While these claims are seldom accompanied by rigorous supporting evidence, they do have some degree of face validity. Similar anecdotal evidence and inferential evidence has been put forth by a variety of consultants, quality associations, and governmental agencies. The disappointing aspect of this debate is that after more than two decades of such claims, exceptionally little ... rigorous empirical research has been conducted to verify them.” (Dow, Samson, & Ford, 1999)

“Despite the impact that Deming and his Fourteen Points have had on the practice of quality management, empirical support for the effectiveness of the Deming Management Method has not advanced beyond the presentation of anecdotal, case study evidence.” (Anderson, Rungtusanatham, Schroeder, & Devaraj, 1995)

Fred Luthans, in “Theory D and O. B. Mod.: Synergistic or opposite approaches to performance improvement?” (Luthans & Thompson, 1987) also specifically calls for research into the efficacy of the Deming prescription.

## REVIEW OF THE LITERATURE

The review of the literature for this study included approximately 150 articles, forty books, 100 article abstracts, fifteen dissertation abstracts, 100 newspaper articles, 100 newspaper article abstracts, as well as the entries within databases providing full coverage for well over 10,000 journals and trade magazines. That search resulted in the location of no more than twenty works that represent rigorous, quantitative analytical attempts to build knowledge regarding the Deming philosophy via the scientific method, eight of those works being dissertations. A significant portion of the literature located during this literature review is best described as trade press cases informally anecdoting successful improvement through employment of the Deming prescription. Much of the balance of the literature located can be described as publications seeking to clarify and or exemplify some portion of the Deming prescription or publications seeking to restate the Deming prescription toward a niche audience, functional area or industry.

The review revealed only a minimal amount of formal academic research in traditional management journals regarding the Deming philosophy. A 1994 *Academy of Management Review* article presents research that proposes a theoretical model based on constructs resulting from a Delphi study involving seven experts who “had been involved professionally, and, in some cases, personally with Deming.” (Anderson, Rungtusanatham & Schroeder, 1994) A 1995 *Decision Sciences* article describes a testing of the model using path analysis on survey data collected from forty-one U.S. manufacturing plants. Statistical significance is found for six of the eight paths.

(Anderson, Rungtusanatham, Schroeder & Devaraj, 1995) A 1997 dissertation hypothesized that the causal factors in that model would correlate with the outcomes expected under the Deming philosophy; only minor support was found. (Kromkowski, 1997) A 1998 article in the *Journal of Operations Management* replicates the 1995 study, this time analyzing data from forty-four Italian manufacturing plants; five of the eight paths found support. (Rungtusanatham, Forza, Filippini & Anderson, 1998)

Other researchers investigated various aspects of the Deming philosophy. A group of managers and subordinates were surveyed regarding their beliefs about performance appraisals; support was found for the Deming perspective (Carson, Cardy, & Dobbins, 1991). Two departments of an organization were surveyed regarding their implementation of interdepartmental cooperation according to the Deming prescription; the respondents perceived positive improvements (Collard, 1993). Researchers developed a “Company Quality Profile” instrument based on Deming’s Fourteen Points, then piloted the instrument at a high-technology consumer products factory (Motwani, Sower, & Roosenfeldt, 1993). A longitudinal field study investigated the perceived changes in quality-of-work life and productivity after implementation of Deming methods using the Michigan Organizational Assessment Package; the results indicate positive impact on productivity (Elmuti & Kathawala, 1994). Two economists constructed an economic model based on agency theory that finds validity for Deming’s Point Four advocacy of single suppliers (Richardson & Roumasset, 1995). A recent article posits, but does not test, certain relationships between existing leadership styles and the Deming philosophy (Sosik & Dionne, 1997).

Eight of the twenty writings located were dissertations. One dissertation developed an fifty item, Likert-style scale instrument that measures implementation of Deming’s Fourteen Points. The instrument was assessed by the author for reliability and validity (Tamimi, 1993). The author later published the instrument along with results of an associated survey (Tamimi & Gershon, 1995). Similar work was performed in an earlier dissertation. A similar type of instrument was developed, assessed for validity, and used to survey for data used for the building of a unpublished model (McCullough, 1988). Another dissertation work prepared a “Deming Advocacy Questionnaire” and employed it to determine what type of individual advocates Demingism, the types being defined as those that fall from the Myers Briggs Type Indicator (Gleckner, 1994). A 1993 dissertation developed an instrument to measure Deming perspective characteristics in individuals and used it to survey a number of American Society of Quality managers. Cluster analysis determined that the managers tended to be either Deming managers, non Deming managers, or “not sure” managers (McNary, 1993). Another dissertation analyzed the holistic nature of Deming’s Fourteen Points. The work found no holistic adherence to Deming’s Fourteen Points within any of the six organizations studied, each of which had inconsistent quality outcomes. As a result, it could not be concluded that holistic adherence is requisite to positive quality outcomes (Long, 1994). Two dissertations involved educational research. One dissertation surveyed 1,100 Wisconsin principals to test the hypothesis that their positive behaviors and attitudes regarding the Deming philosophy positively correlate with student achievement; the results indicated no correlation (Sohn, 1998). Another dissertation surveyed North Dakota public school superintendents and determined that the majority favor implementation of Deming practices as presented in the instrument and that there was no system size effect (Holmes & William, 1997).

In addition to the aforementioned academic streams of research, a large number of practitioner articles, magazine pieces and popular press books that could not be considered to be academic in nature were available. These works tended to explain some facet of Demingism, anecdote Demingism cases with positive outcomes or attempt to transfer some part of the Deming body of knowledge to a new audience or industry.

The major implication resulting from this literature review is that the abundance of anecdotal support for Demingistic practices, when compared to the almost total absence of significant academic research regarding Demingism, in of itself effects a compelling call to conduct formal research.

## RESEARCH QUESTIONS AND METHODOLOGY

Given the population of Deming SMEs likely represent those most experienced in attempts to implement Demingistic principles in organizations, research questions regarding those efforts were especially appropriate. In this study, the Deming SMEs were asked two specific open response questions regarding such efforts:

**Question 1:** What are the top three causes of failure of Demingistic principles in cases where it has failed?

**Question 2:** What are the three biggest problems encountered in implementing the Demingistic principles?

Fifty-five individuals were initially selected to function as Deming philosophy subject matter experts for this survey. These individuals were selected on the basis that they had relatively extensive professional contact with Dr. Deming, published on the topic of the Deming philosophy, remained centrally active in the Deming community, and/or are credited by name by Dr. Deming in his written works. Upon further inspection, two of these individuals were excluded as not truly being qualified as Deming SMEs. Thus, a total of fifty-three Deming SMEs were ultimately identified for the purposes of this survey. Of those individuals, two individuals disqualified themselves in pre contact as not being Deming subject matter experts, one individual declined participation during pre-contact and three individuals could not be located. Of those remaining forty-seven individuals who were mailed the survey, twenty-seven individuals completed and returned all responses to the two questions, translating to a 57.4% usable response rate. Table 1 below illustrates the type of participation of the fifty-five Deming SMEs.

In order to positively influence the response rate, a number of actions were taken. At least one attempt was made to contact each subject by telephone prior to the mailing of the survey in order to increase the response rate. It was explained in the cover letter that each individual received with the survey letter that they were part of a very carefully selected and very small group of individuals being surveyed and so each response was critical in order for the study to be successful. A second request letter and a "double mailing" of the survey was sent to non-respondents. Further, the cover letter was sent on departmental letterhead to imply sponsorship and authenticity. Dillman (Dillman, 1978) gives support toward the use of all these tactics in order to increase response rate. Dillman was also consulted in a broader, more general sense for expertise in conducting this mail survey. Further, surveys were sent with stamped return postage (as opposed to "postage to be paid" mailings), a second request letter and "double mailing" was sent to non-respondents and cover letters were sent on university letterhead due to the fact that significance was found for each of those factors in a meta-analysis of the factors typically used to induce response in mail surveys. (Fox, Crask & Kim, 1989)

**Table 1: Level of Participation by the 55 Initially Identified Deming SMEs**

Usable survey responses		27
Declined, health reasons		1
Declined, returned materials without explanation		1
Declined, with explanation of theoretical objections		5
No response		13
Subtotal, surveys mailed		47
Declined in pre-contact		1
Self-disqualified as Deming SME in pre-contact		2
Could not be located for contact and mailing		3
Subtotal, Deming SMEs ultimately identified for survey		53
Excluded as Deming SME after initial identification		2
Grand Total, Deming SMEs initially identified for survey		55

## ANALYSIS OF DATA

### Question 1: Demingism Failures

The responses to Question 1 were informally coded, resulting in a certain degree of evidence upon which at least one informal conclusion was drawn. The results of the Question 1 coding, disregarding the miscellaneous responses as discussed below, are Pareto-charted in Figure 1.

From the answers provided by the 27 respondents, 71 responses were coded. By far, the most common response was failure of senior management or leadership. Failure of senior management and leadership accounted for seventeen of the 71 coded responses, approximately 24% of the total coded responses. In fact ten of the 27 individuals responded that failure of senior management and leadership was the leading cause of Deming prescription failure, and three of the individuals cited it as the *sole* cause. The most common failure attributed to senior management and leadership was a lack of commitment or constancy of purpose.

Thirteen other coded responses attributed failure to "management" for various reasons, but did not specifically make reference to senior management. This data certainly offers a certain degree of informal evidence to conclude that Deming prescription failure is most often due to management, most frequently the lack of commitment by senior management. This conclusion is in general alignment with the existing management literature that finds various organizational models and outcomes are ultimately requisite upon the posture of senior management. This

conclusion is also in general alignment with Dr. Deming’s known posture toward the criticality of senior management support.

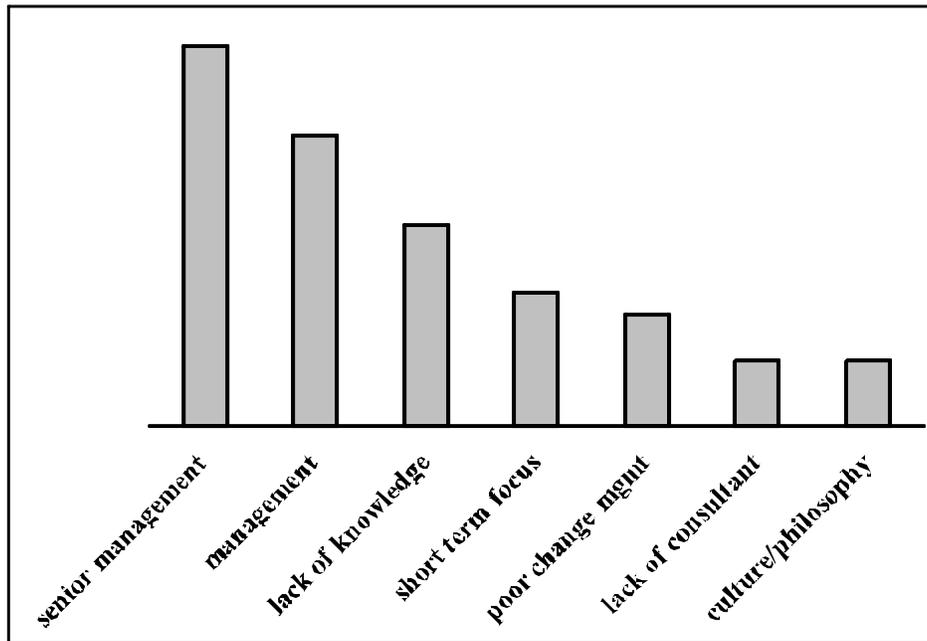


Figure 1: Pareto Charting of Question 1 Responses

Five other major codings emerged from the responses: inadequate understanding of Demingism (nine responses), lack of long-term focus and/or short-term thinking (six responses), poor or partial implementation (five responses), lack of a good Deming consultant (three responses) and organizational culture/philosophy that conflicted with Demingism (three responses). There were fifteen other unduplicated responses that were coded as “miscellaneous.”

### Question 2: Demingism Implementation Problems

The responses to Question 2 were informally coded, resulting in a certain degree of evidence upon which at least one informal conclusion was drawn. The five most frequent codings are Pareto-charted in Figure 2.

From the answers provided by the 27 respondents, 79 responses that could be coded were categorized. In general, many of the same codings seen under the preceding question emerged once again. The most common response coding was failure of “management” for various reasons, but did not specifically make reference to senior management. Failure of management accounted for twelve of the seventy-nine coded responses, approximately 15% of the total coded responses. Nine other coded responses specifically referenced failure of senior management. When these two codings are considered together, the Deming SME’s attributed implementation problems to management (or senior management) in 28% of their coded responses. This data certainly offers a certain degree of informal evidence to conclude that Deming implementations problems are most often due to management, most frequently the lack of commitment by senior management. Again, this conclusion is in general alignment with Dr. Deming’s known posture toward the criticality of senior management support.

In total, ten other duplicated codings emerged from the responses: inadequate understanding of Demingism (ten responses), lack of long-term focus and/or short-term thinking (ten responses), organizational culture/philosophy that conflicted with Demingism (seven responses), poor or partial implementation (three responses), lack of a good Deming consultant (three responses), lack of a “systems” perspective (three responses), blaming individuals (two responses), fear (two responses), employee turnover (two responses) and intractable corporate systems (two responses). There were fourteen other unduplicated responses that were coded as “miscellaneous.”

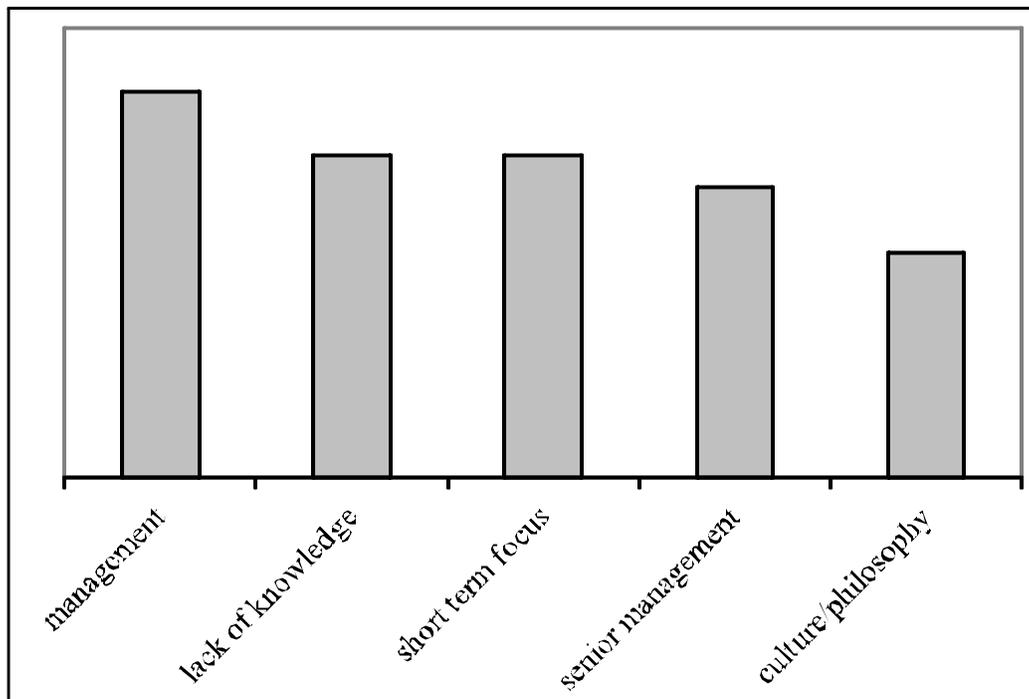


Figure 2: Pareto Charting of Question 2 Responses

### CONCLUSION AND DISCUSSION

This data certainly offers a certain degree of informal evidence to conclude that Deming implementations problems are most often due to management, most frequently the lack of commitment by senior management.

Again, this conclusion is in general alignment with Deming’s known posture toward the criticality of senior management support. Deming was well known for requiring the support of top management prior to entering into a relationship with an organization. Further, Deming made numerous statements regarding the criticality of leadership toward successful culture and cultural transformation. The following quotations are but a small sample of such statements:

“The job of management is to replace work standards by knowledgeable and intelligent leadership. ... Wherever [this has been done], quality and productivity have gone up substantially.” (Deming, 1986)

“Managers must drive out fear, so that everyone may work effectively for the company.” (Deming, 1986)

"Plants do not close from poor workmanship, but from poor management." (Deming, 1986)

"Quality is determined by the top management. It can not be delegated." (Deming, 1986)

"Where is quality made? The answer is, by the top management. The quality of the output of a company can not be better than the quality determined at the top." (Deming, 1986)

"Quality begins with the intent, fixed by management." (Deming, 1986)

“... the job of management is not supervision, but leadership” (Deming, 1986)

“... good management helps to nurture and preserve ... positive innate attributes of people [such as] a natural inclination to learn [and] the right to enjoy his work.” (Deming, 1994)

“Resolution of conflicts, and removal of barriers to cooperation, are responsibilities of management.” (Deming, 1994)

Given Deming's established philosophical posture regarding the criticality of top management, these results are not entirely surprising. However, through this study, that posture finds additional support within the numerous implementation experiences of Deming experts, support that moves Deming's posture even further beyond mere philosophy and more toward known phenomena and practice.

Those readers wishing to become more familiar with Deming's Philosophy of Management are directed to read Deming's own books (1986, 1994) as well as *Dr. Deming: The American who taught the Japanese about quality* (Aguayo, 1990), *Thinking about quality: Progress, wisdom, and Deming philosophy* (Dobyns & Crawford-Mason, 1994), *The man who discovered quality: How W. Edwards Deming brought the quality revolution to America: The stories of Ford, Xerox, and GM* (Gabor, 1990) and *The Deming management method* (Walton, 1986)

## REFERENCES

- Anderson, J. C., Rungtusanatham, M., & Schroeder, R. G. 1994. A theory of quality management underlying the Deming management method. *Academy of Management Review*, 19(3): 472–509.
- Anderson, J. C., Rungtusanatham, M., Schroeder, R. G., & Devaraj, S. 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.
- Aguayo, R. 1990. *Dr. Deming: The American who taught the Japanese about quality*. Secaucus, New Jersey: Carol Publishing Group.
- Bean, E. 1985. Cause of quality-control problems might be managers, not workers. *Wall Street Journal*. New York, New York.
- Carson, K. P., Cardy, R. L., & Dobbins, G. H. 1991. Performance appraisal as effective management or deadly management disease: Two initial empirical investigations. *Group & Organization Studies*, 16(2): 143–159.
- Collard, E. F. N. 1993. The impact of Deming quality management on interdepartmental cooperation. *Human Resource Development Quarterly*, 4(1): 71–79.
- Deming, W. E. 1986. *Out of the crisis*. Cambridge, Massachusetts: Massachusetts Institute of Technology Center for Advanced Engineering Study.
- Deming, W. E. 1994. *The new economics for industry, government, education* (2nd ed.). Cambridge, Massachusetts: Massachusetts Institute of Technology.
- Dillman, D. A. 1978. *Mail and telephone surveys: The total design method*. New York, New York: Wiley.
- Dixon, G. 1987. Kaizen!, *Corporate Report Minnesota*, Vol. 18: 56. Minneapolis, Minnesota.
- Dobyns, L., & Crawford-Mason, C. 1994. *Thinking about quality: Progress, wisdom, and Deming philosophy* (1st ed.). New York, New York: Times Books/Random House.
- Dow, D., Samson, D., & Ford, S. 1999. Exploding the myth: Do all quality management practices contribute to superior quality performance? *Production and Operations Management*, 8(1): 1–27.
- Elmuti, D., Kathawala, Y., & Wayland, R. 1992. Traditional performance appraisal systems: The Deming challenge. *Management Decision*, 30(8): 42–48.
- Fox, R. J., Crask, M. R., & Kim, J. 1989. Mail survey response rate: A meta-analysis of selected techniques for inducing response. *Public Opinion Quarterly*, 52(4): 467–491.
- Gabor, A. 1990. *The man who discovered quality: How W. Edwards Deming brought the quality revolution to America: The stories of Ford, Xerox, and GM* (1st ed.). New York, New York: Times Books.
- Gleckner, D. S. 1994. *A correlational study of personality characteristics and the Deming model of total quality management*. Unpublished Ed.D. Dissertation, The George Washington University, Washington, District of Columbia.
- Holmes, L., & William, O. 1997. *North Dakota public school superintendents' perceived actual and desired applications of Deming's Fourteen Points*. Unpublished Ed.D. Dissertation, The University of South Dakota, Vermillion, South Dakota.
- Luthans, F., & Thompson, K. R. 1987. Theory D and O. B. Mod.: Synergistic or opposite approaches to performance improvement? *Journal of Organizational Behavior Management*, 9(1): 105–124.
- Kromkowski, J. A. 1997. *Deming's management system applied to performance evaluation and reward: A field study of organizational values, practices and behavioral outcomes*. Unpublished Ph.D. dissertation, University of Maryland, College Park, Maryland.
- Kusumoto, S. 1987. Manager's Journal: Japanese strategy made in the U.S.A., *Wall Street Journal*. New York, New York.
- Lazzareschi, C. 1993. In endless pursuit: A hero in Japan. Deming continues his quest for quality at home, *Los Angeles Times*: 1. Los Angeles, California.
- Long, L. L. 1994. *An analysis of the holistic nature of the Deming Fourteen Point philosophy*. Unpublished Ed.D. Dissertation, The University of Cincinnati, Cincinnati, Ohio.
- McCullough, P. M. 1988. *Development and validation of an instrument to measure adherence to Deming's philosophy of quality improvement*. Unpublished Ph.D. Dissertation, The University of Tennessee, Knoxville, Tennessee.
- McNary, L. D. 1993. *The Deming management theory: A managerial leadership profile for the new economic age*. Unpublished Ph.D. Dissertation, The University of New Mexico, Albuquerque, New Mexico.
- Milstein, M. 1992. Mentor to Japanese industry pushes for quality, *The Billings Gazette*: 1. Billings, Montana.
- Motwani, J. G., Sower, V. E., & Roosenfeldt, M. E. 1993. Adapting Deming's philosophy: An evaluative model. *Industrial Management & Data Systems*, 93(8): 3–7.
- Saunders, R. R., & Saunders, J. L. 1994. W. Edwards Deming, quality analysis, and total behavior management. *Behavior Analyst*, 17(1): 115–125.
- Sohn, H. 1998. *Principals' behaviors and attitudes regarding Deming's 14-point quality improvement philosophy and student achievement*. Unpublished Ph.D. Dissertation, The University of Wisconsin - Madison, Madison, Wisconsin.
- Richardson, J., & Roumasset, J. 1995. Sole sourcing, competitive sourcing, parallel sourcing: Mechanisms for supplier performance. *Managerial & Decision Economics*, 16(1): 71–84.
- Rungtusanatham, M., Forza, C., Filippini, R., & Anderson, J. C. 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(1): 77–95.
- Sosik, J. J., & Dionne, S. D. 1997. Leadership styles and Deming's behavior factors. *Journal of Business and Psychology*, 11(4): 447–462.
- Tamimi, N., & Gershon, M. 1995. A tool for assessing industry TQM practice versus the Deming philosophy. *Production & Inventory Management Journal*, 36(1): 27–32.
- Tamimi, N. A. 1993. *An instrument for operationalizing and testing Deming's theory of total quality management*. Unpublished Ph.D. Dissertation, Temple University, Philadelphia, Pennsylvania.
- Walton, M. 1986. *The Deming management method*. New York, New York: Putnam.

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