

BUSINESS EXCELLENCE SOLUTIONS



# **JISU Kanri and the Japanese Psychology of Management**

Motivation – The Critical Ingredient in Quality

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## Motivation – The Critical Ingredient in Quality

This paper was originally written in 2009 when I was just beginning my program of studies at Oklahoma State University for a doctoral degree in industrial engineering. I was taking a course in industrial psychology and took a project to create a working paper that would describe the “roots” of this process in Japanese quality thought.

I had intended to publish this paper as a book after I added the set of Kanji characters with their explanations throughout the text as I believed that this would enrich the knowledge transfer. However, it was not to be as I became overwhelmed with a nine-year study for the degree.

The meaning of Japanese Kanji characters can be illustrated using the character for “kai” or “改” which has the meaning: to correct; to improve; change; transform; alter; fix; reform; or modify. Note that this character is pervasive in several phrases that convey important quality-related concepts:

- *Kai-zen* (改善) – modification for better – referring to incremental process improvements.
- *Kai-ryo* (改良) – modification for better – referring to product revisions or upgrades.
- *Kai-kaku* (改革改革) – modification by radical, revolutionary innovation – referring to breakthroughs.

As with most Kanji characters, this is a “borrowed word” combining two middle Chinese Han primitives into a compound character that is a pictogram with the meaning of the first primitive comes from the act of the weaving of thread into cloth (e.g., to change its form) while the second primitive describes oversight or something that is managed. The character “*kai*” refers to a managed process for making something better.

Jisu Kanri (自主管理) is the basis for the Japanese working environment. It is literally a self-managed or self-regulated management system that each worker uses in their daily management or routine work activities. In this system “every worker is also an inspector” and workers collaborate in what is called jishuken (自主権) teams. Jishuken literally means “a second pair of eyes.” No worker does their work in isolation. They are guided by supervisors and monitored by colleagues to ensure that the right work is done. This is fully aligned with the consensus-based culture of Japan; however, it is foreign to the independent way most Western cultures operate where workers are more individualistic.

When I wrote this paper, I did not come across this term or its meaning. I will write further about this subject in a book about the “*kanri* of *kanri*’s” – the *hoshin kanri* management process. This book and a book on daily management are founded upon the idea of jisu kanri. I hope to have the energy to complete the working papers that I have prepared on these subjects and to transform them into openly published books.

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1 December 2020

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# Jisu Kanri and the Japanese Psychology of Management: Motivation: Critical Ingredient in Quality

Gregory H. Watson

## Introduction

The fundamental business incentive for motivation theory in Japanese business is to “stimulate people’s will to work.”<sup>1</sup> While naïve observers of Japanese production methods assume that workers in the Japanese workplace (called the “gemba”) are automatons who systematically conduct repetitive, standard work in minute task increments and focus blindly on productivity improvement (what the Japanese call “kaizen”),<sup>2</sup> this view does not reflect the true conditions of a Japanese work-place, nor does it demonstrate an understanding of how Kaizen operates or provide evidence of the rationale behind the motivation of its workers.

This paper describes development of a uniquely Japanese approach to work that has often been labeled the “Toyota Production System” due to the strong influence of Toyota’s work process innovations in the reconstruction and reinvention of this business following the Second World War. Many contributions and significant intellectual milestones influenced the development of the modern Japanese approach to motivation which blends psychology and behavioral science with management theory and quality control. The most significant are highlighted below:

- The foundation of the modern Japanese industrial thinking was the work of Frederick W. Taylor (*Principles of Scientific Management*)<sup>3</sup> which was further translated into Japanese in 1912<sup>4</sup> and was subsequently cited by Kaoru Ishikawa, who was the catalyst for the Japanese quality movement, as a contributor to the development of the Japanese Plan-Do-Check-Act approach to problem-solving and management.<sup>5</sup>
- The theory of work, belief system about workers, and framework for appropriate delegation

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<sup>1</sup> Yoshio Kondo, editor, *Human Motivation: A Key Factor for Management* (Tokyo: 3A Corporation, 1989), p. vii.

<sup>2</sup> Mike Parker and Jane Slaughter, *Choosing Sides: Unions and the Team Concept* (Detroit: Labor Notes, 1988) and Mike Parker and Jane Slaughter, *Working Smart: A Union Guide to Participation Programs and Reengineering*, (Detroit: Labor Notes, 1994).

<sup>3</sup> Frederick W. Taylor, *The Principles of Scientific Management* (Mineola, NY: Dover Publications, 1911).

<sup>4</sup> William M. Tsutsui (1998) *Manufacturing Ideology: Scientific Management in Twentieth Century Japan* (Oxford, UK NJ: Princeton University Press), pp. 18-21.

<sup>5</sup> Kaoru Ishikawa (1985), *What is Total Quality Control? The Japanese Way* (Englewood Cliffs, NY: Prentice-Hall), p. 59.

of authority to workers were established by Panasonic founder Konosuke Matsushita who is often referred to as the Father of Japanese Management<sup>6,7</sup> and Toyota manufacturing vice president Taiichi Ohno who is known as the architect of the Toyota Production System.<sup>8</sup>

- Homer M. Sarasohn and Charles A. Protzman developed and delivered early participative management education to drive continuous improvement in Japanese production systems as part of the General Douglas McArthur's effort in the reconstruction of Japan.<sup>9</sup> Sarasohn and Protzman were American engineers assigned to the General Headquarters (GHQ) Civil Communications Section (CCS) in Tokyo to assist in reconstruction of the Japanese civilian telecommunications systems (1946-1950).
- W. Edwards Deming wanted to restore the joy of work by "giving the workforce a chance to work with pride" through the system of management that he taught in the early 1950s.<sup>10,11</sup>
- Peter F. Drucker described the prerequisites for delegating quality responsibility to workers and introduced a management concept for sharing work objectives through his system of managing by objectives and results.<sup>12,13,14</sup> Drucker also promoted management for results as a negotiation process for assuring agreement on objectives and application of resources to support their achievement.
- Many works of leading psychologists were translated into Japanese and their influence on formulating Japanese thinking was profound. As a result of this "technology transfer," the ideas of Henri Fayol, Abraham Maslow, Frederick Herzberg, Douglas McGregor, Elliot Jacques, and Harold J. Leavitt became embedded into Japanese psychological theory used to interpret the "human side of enterprise."<sup>15, 16, 17, 18, 19, 20, 21, 22, 23, 24</sup>

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<sup>6</sup> Konosuke Matsushita, *The Matsushita Perspective: A Business Philosophy Handbook* (Tokyo: PHP Institute, 1997).

<sup>7</sup> Konosuke Matsushita, *As I See It* (Tokyo: PHP Institute, 1989).

<sup>8</sup> Taiichi Ohno, *Workplace Management* (Cambridge, MA: Productivity Press, 1988).

<sup>9</sup> Homer M. Sarasohn and Charles A. Protzman, *Fundamentals of Industrial Management* (Tokyo: GHQ CCS, 1949).

<sup>10</sup> W. Edwards Deming, *Out of the Crisis* (Cambridge, MA: MIT Press, 1986), p. 85.

<sup>11</sup> W. Edwards Deming, *The New Economics*, (Cambridge, MA: MIT Press, 1994).

<sup>12</sup> Peter F. Drucker, *The Practice of Management* (New York: Harper & Row, 1954).

<sup>13</sup> Peter F. Drucker, *Managing for Results* (New York: Harper & Row, 1964).

<sup>14</sup> Peter F. Drucker, *The Effective Executive* (New York: Harper & Row, 1986).

<sup>15</sup> Henri Fayol, *General and Industrial Administration* (New York: Pitman Publishing, 1949).

<sup>16</sup> Douglas McGregor, *The Human Side of Enterprise* (New York: McGraw-Hill, 1960).

<sup>17</sup> Douglas McGregor, *The Professional Manager* (New York: McGraw-Hill, 1967).

<sup>18</sup> Frederick Herzberg, Bernard Mausner, and Barbara Bloch Snyderman, *The Motivation to Work* (New York: John Wiley, 1959).

<sup>19</sup> Abraham Maslow, "A Theory of Human Motivation," *Psychological Review*, Vol. 50, 1943, pp. 394-395.

<sup>20</sup> Abraham Maslow, *Motivation and Personality* (New York: Harper & Row, 1954).

<sup>21</sup> Abraham Maslow, *Maslow on Management* (New York: John Wiley, 1998).

<sup>22</sup> Abraham Maslow, *Toward a Psychology of Being* (New York: Harper & Row, 1962).

<sup>23</sup> Elliott Jacques, *Measurement of Responsibility* (London: Tavistock Publications, 1956).

<sup>24</sup> Harold J. Leavitt, *Managerial Psychology* (Chicago: University of Chicago Press, 1959).

- Shigeo Shingo developed the Toyota Production System based on the working philosophy of Taiichi Ohno by ‘mistake-proofing’ workplace to assure that ‘zero defects’ are conveyed to customers.<sup>25, 26</sup>
- The Japanese academic study was initiated by E. Eizaboro Nishibori who defined the spirit and philosophy of the Japanese theory of human motivation.<sup>27</sup>
- Kaoru Ishikawa developed and promoted Quality Circles as a natural way of working which helped to create this approach to work as an institutionally accepted method in Japan.<sup>28</sup>
- Joseph M. Juran called for ‘new motivation’ due to ‘ills’ of Frederick W. Taylor’s system of scientific management and supported the Quality Circle concept as opposed to the directive system of Taylorism.<sup>29, 30, 31, 32, 33</sup>
- Finally, Yoshio Kondo guided the Human Motivation Research Committee of the Japanese Standards Association to define a logic of human motivation from a Japanese perspective.<sup>34</sup>

This paper traces the detailed development of this intellectual history and describes the critical contributions of these individuals as they influenced development of a humanistic application of industrial thinking in the Japanese quality movement from the period of 1947 through 1989.

### Research Hypothesis

A key hypothesis for this literature research is that: motivation theory is a core ingredient in the modern Japanese system of industrial management. In fact, it has been a missing ingredient as most Western authors writing about the “Japanese Quality” phenomenon observe artifacts of tools, methods and organizing structure but missed the human ingredient.

### Research Approach

This paper was initially conceived upon the discovery of the developmental timeline presented

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<sup>25</sup> Shigeo Shingo, *Zero Quality Control: Source Inspection and Poka-Yoke System* (Cambridge, MA: Productivity Press, 1986).

<sup>26</sup> Nikkan Kogyo Shimbun, Ltd., *Poka-yoke: Improving Product Quality by Preventing Defects* (Cambridge, MA: Productivity Press, 1987).

<sup>27</sup> Kondo, *Op. Cit.*

<sup>28</sup> Kaoru Ishikawa, *What is Total Quality Control? The Japanese Way* (Englewood Cliffs, NJ: Prentice-Hall, 1985).

<sup>29</sup> Joseph M. Juran, *Managerial Breakthrough* (New York: McGraw-Hill, 1964).

<sup>30</sup> Joseph M. Juran, “Quality Problems, Remedies and Nostrums,” *Industrial Quality Control*, June 1966, pp 647-653.

<sup>31</sup> Joseph M. Juran, “The QC Circle Phenomenon,” *Quality Progress*, January 1967, pp. 329-336.

<sup>32</sup> Joseph M. Juran, “Operator Errors – Take a New Look,” *Quality Progress*, February 1968, pp.9-11, 54.

<sup>33</sup> Joseph M. Juran, “The Upcoming Century of Quality,” *Quality Progress*, August 1994, pp. 29-37.

<sup>34</sup> Kondo, *Op. Cit.*

as part of the background for the development of the Japanese planning methodology that is called “*hoshin kanri*.” The author had personal experience in the development of this method through his work at Hewlett-Packard (1984-1989). During this period, he was introduced to the work of Yoshio Kondo, Yoji Akao and Noriaki Kano and was even asked by Dr. Akao to provide a “Western” introduction to a Japanese Standards Association study of strategic quality planning in Japan in 1991. It was during the preparation of this introduction that the author observed a deep intellectual fascination by the Japanese of Western management literature in general, and organizational psychology literature in specific.

Thus, two specific literature searches have been conducted to understand the influences of Western managerial psychological thought on the development of the system of thinking described as Japanese quality management to help characterize and understand the motivational issues in Japanese concepts of teamwork as it is distinct from the Western application of teams:

- Trace the literature that was translated into Japanese to determine which ideas have had dominant influence on the development of Japanese theory of work and motivation and how these ideas have influenced the evolving definition of Japanese quality management.
- Analyze the publication history of various Japanese Quality Research Committee findings to understand how they contribute to the definition of the system of Japanese thinking that is called Total Quality Management (TQM).

The author anticipates that these two literature searches will produce findings that are worthy of publication in peer-reviewed academic journals. Preliminary discussions with the editor of the *Journal of Quality & Participation* indicate high interest. This paper was prepared originally for a course in industrial psychology to develop follow-on journal articles related to this subject.

### **Introductory Note on the Etymology of “Gemba” and “Kaizen”**

Two Japanese words that are used to describe the environment for motivation of workers are the concept of the work environment, “gemba,” and the fundamental philosophy that drives worker involvement toward continuous improvement, “kaizen.” The meaning of Japanese words is often illuminated by examining the individual elements of the kanji characters which are used to construct their composition. For example, the kanji characters used to define “gemba” consist of four individual pictograms: the king, surveying his kingdom, at sunset and the pigsty. These characters paint a picture of a messy workplace at the end of the day as management examines the condition of the worker’s environment. Likewise, the concept of continuous improvement is illuminated by examining the kanji characters that form “kaizen”

which is typically translated as continual or incremental improvement. However, the characters that form this word are “kai” which also is used to mean taking something apart and putting it back together again, and “zen” which can also mean to reflect upon the meaning of a focused object. Thus, kaizen can be considered in relationship to the act of engineering: the activity of taking something apart, examining it to seek improvement opportunities and putting it back together in an improved state. One should also note that it is the responsibility of an engineer to develop a design that is technically functional and delivers the required level of performance at the lowest total cost and without undue risk of failure. All of these ideas are fundamental to the concepts of Japanese quality.<sup>35</sup>

### Early Influences on Japanese Psychology of Work

We can learn about the impact of western thinking on development of a Japanese style of management by examining their selection of these early translations. Some of the ingredients of Western influence on the development of a Japanese theory of work came from Frederick W. Taylor (1856-1915) in his 1911 book *Principles of Scientific Management*;<sup>36</sup> Walter A. Shewhart (1891-1967) in his 1931 book *The Economic Control of Quality of Manufactured Product*;<sup>37</sup> and Homer M. Sarasohn (1916-2001) and Charles A. Protzman (1883-1971) in their 1949 book *The Fundamentals of Industrial Management*.<sup>38</sup> In addition, the World War II training programs for American workers were transferred to Japan. This so-called “eight day course” was based on a course on statistical control developed by Holbrook Working and Eugene L. Grant of Stanford University and was taught to American industry through the sponsorship of the War Production Board (instructors in this course were: Eugene L. Grant, W. Edwards Deming, Ralph M. Wareham, Joseph M. Juran, Harold F. Dodge, and Harry G. Romig).<sup>39</sup> Finally, in 1948 the newly formed Union of Japanese Scientists and Engineers (JUSE) requested that the American Society for Quality Control (ASQC – now called American Society for Quality (ASQ)) provide the course that it had delivered to American factories on statistical quality control for translation into Japanese. Ichiro Ishikawa (1885-1970), formerly President of Nissan Chemical Industries,

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<sup>35</sup> Translation advice was provided by Glenn H. Mazur, Japanese Business Consultants, and official translator of the works of Yoji Akao.

<sup>36</sup> Frederick W. Taylor, *The Principles of Scientific Management* (Mineola, NY: Dover Publications, 1911).

<sup>37</sup> Walter A. Shewhart, *The Economic Control of Quality of Manufactured Product* (New York: Van Nostrand, 1931).

<sup>38</sup> Homer M. Sarasohn and Charles A. Protzman, *Fundamentals of Industrial Management* (Tokyo: GHQ CCS, 1949).

<sup>39</sup> In a 1999 interview with Ralph Wareham, second President of the American Society for Quality, he disclosed that during the early years of ASQ the General Headquarters of the U. S. Occupation Army in Japan requested that the American Society for Quality Control (now called the American Society for Quality) provide the newly formed Union of Japanese Scientists and Engineers with a copy of the eight-day course in statistical quality control that was delivered to American industry as part of the war production improvement effort to teach the methods of Walter A. Shewhart.

elected Chairman of the Japan Industrial Association (1946), Founding President of Keidanren (Japan Federation of Economic Organizations) (1948) and initial chairman of JUSE. He encouraged many principal Japanese companies and business leaders to become involved in the early Japanese quality initiative. These four influences were the foundation for the Japanese approach to quality as well as establishing an intellectual structure for its approach to managing the quality of worker efforts. The following paragraphs will describe the influence of these four activities as an introduction to the activities that JUSE embarked upon underneath the direction of its long-term leader Dr. Kaoru Ishikawa (1915-1989) (the oldest of eight sons of Japanese industrialist Ichiro Ishikawa). The influence of Dr. Ishikawa is still felt in Japan today.

### **Influence of Taylor**

Frederick W. Taylor sought to develop a systematic approach to improve the output of work as well as the quality of work life in the factory. The core values of his approach were application of the rule of reason, improved quality, reduced costs, increased wages for workers, higher levels of production output, labor-management cooperation, experimentation in performance of tasks to identify the most efficient way to do work, clear definition of tasks and goals, giving feedback on work performance, training in the job to be done, mutual help and support among workers, stress reduction, and the careful selection and development of workers. Taylor was the first to present a systematic study of interactions among job requirements, tools, methods, and human skill, to fit people to jobs both psychologically and physically, and to let data and facts do the talking rather than prejudice, opinions, or egomania.<sup>40</sup> In a retrospective analysis of key influences on the development of Japanese TQM, Dr. Noriaki Kano observed that Taylor's systematic method was summarized by the JUSE thought leaders using a model summarized as "Plan, Do, See" to evaluate the outcome of the execution of the scientific plans to improve work.<sup>41</sup> Indeed, it was Dr. Ishikawa credited Taylor's work with influencing the Japanese development of the PDCA methodology that is a cornerstone of the Japanese TQM methods.<sup>42</sup>

### **Influence of Shewhart**

Shewhart reinterpreted Taylor's model for mass production which he defined as a three step iterative process applying the scientific method to discover the best way to work: specification (making a hypothesis); production (carrying out an experiment); and inspection (testing the

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<sup>40</sup> Marvin R. Weisbord, *Productive Workplaces* (San Francisco: Jossey-Bass, 1987).

<sup>41</sup> Noriaki Kano, "Causal Relationship Model and Comprehensive Procedure for Quality Management," *Proceedings 3<sup>rd</sup> Annual Asian Network for Quality*, Taipei, Taiwan, 2005.

<sup>42</sup> Kaoru Ishikawa, Kaoru, *What is Total Quality Control? The Japanese Way*, (Englewood Cliffs, NJ: Prentice-Hall, 1985).

hypothesis). Shewhart's thinking was also strongly influenced by both American pragmatists Clarence Irving Lewis (1883-1964)<sup>43</sup> and John Dewey (1859-1952).<sup>44</sup> American pragmatism is characterized by the proposition that meaning comes from observable practical consequences rather than in a theoretical ideal. While Shewhart's statistical methods had deeply engaged the Japanese scientists and technologists, his philosophical ideas also evolved into the pragmatic approach taken by his disciple Dr. W. Edward Deming (1900-1993) which was subsequently converted into the foundation of the Japanese approach to quality management.<sup>45</sup> Although it is clear that the influence of Shewhart is derivative (through Deming), his importance in the development of the Japanese quality approach must not be depreciated as it is the pragmatic drive that he embedded into Deming's ideas that caught hold as the fundamental principle for judging the worthiness of new quality methods in Japan – does the method possess a pragmatic utility in the gemba? Deming remarked about the need for pragmatism: “no matter how strong be our degree of belief [in the appropriateness of theoretical knowledge], we must always bear in mind that empirical evidence [the observations or experiments that address a hypothesis] is never complete.”<sup>46</sup>

### **Influence of Sarasohn and Protzman**

As part of an American program to rehabilitate Japanese industry, two American engineers who (Sarasohn and Protzman) were assigned to support development of a new telecommunications system for Japan and they taught a course titled “Fundamentals of Industrial Management” to senior Japanese business leaders because they had recognized Japanese management lacked the understanding of “modern” management methods. This class was developed to apply a very broad concept of industrial management and it used only three books as references:

- Dexter S. Kimball, **Principles of Industrial Organization** (New York: McGraw-Hill, 1939).
- Leon Pratt Alford, **Principles of Industrial Management** (New York: Ronald Press, 1947).
- Paul E. Holden, Lounsbury S. Fish, and Hubert L. Smith, **Top Management Organization and Control** (Palo Alto: Stanford University Press, 1947).

While the content of their program was broad, it is evident that they introduced many new ideas to their students. Some of the germane topics in their curriculum included:<sup>47</sup>

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<sup>43</sup> Clarence Irving Lewis, *Mind and the World Order: Outline of a Theory of Knowledge* (New York: Charles Scribner's Sons, 1929).

<sup>44</sup> John Dewey, *How We Think* (Lexington, MA: Heath, 1910).

<sup>45</sup> Joseph M. Juran, editor, *A History of Managing for Quality* (Milwaukee, WI: ASQ Quality Press, 1995).

<sup>46</sup> Deming, *Out of the Crisis*, p. 133.

<sup>47</sup> Sarasohn and Protzman, *Op. Cit.*

- Business policy describes at a management-level how people in an organization have decided to work together to accomplish purpose for an organization's existence
- Criteria to determine the adequacy of business policy – it is important for workers to be given flexibility to operate within the established policies for business practices
- Leadership and policy enforcement – wise leadership is essential for good policy
- Examples of operations policy – selection of the best way of working
- Standard policy – adherence to the one best way of doing work
- Responsibility for policy adherence – need for harmony<sup>48</sup>

Sarasohn wanted Japanese managers involved in *participative management* – a foundation of the new social democratic system that was being established in Japan through General Douglas MacArthur's reconstruction program based upon the new constitution which he had drafted. Everyone involved in an on-going process of continuous improvement with each person committed to defined goals that aligned with the spirit of the enterprise and a personal sense of ownership of their work within the organization and feedback with the idea of doing their job right the first time and communication to keep the sense of ownership and commitment alive and well. <sup>49, 50, 51, 52</sup>

In addition, Sarasohn and Protzman also defined a five-step problem-solving approach that they called "scientific management" and which was based on the work of Taylor:

- Define the problem precisely.
- Get the facts – all the facts.
- Analyze those facts to decide upon a proper course of action.

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<sup>48</sup> *Ibid.*

<sup>49</sup> N. I. Fisher and V. N. Nair, "Quality Management and Quality Practice: Perspectives on their History and Future," *Applied Stochastic Models in Business and Industry*, January 2009, pp. 1-28.

<sup>50</sup> Nicholas I. Fisher, "Homer Sarasohn and American Involvement in the Evolution of Quality Management in Japan, 1945-1950," *International Statistical Review*, vol. 77, no. 2, 2009 pp. 276-299.

<sup>51</sup> The idea of participatory management had grown over a two thousand year history from the time of Aristotle (384-322 BC) whose *Politics* developed an intellectual foundation for specialization of labor, delegation of authority, departmentalization, decentralization and fundamentals of leadership. In *The Prince* (1527) Machiavelli advised on development of authoritarian structures in organizations. In *Leviathan* (1651) Thomas Hobbes defined "social contract theory" and the need for strong centralized leadership to bring order into "chaos created by man" and through autocratic rule to reestablish a pattern of organization. In *An Essay on Human Understanding* (1690) John Locke defined a foundation of participatory management that the right to leadership is granted by those that are governed – a fundamental principle in the Declaration of Independence. In *The Social Contract* (1762) Jean Jacques Rousseau supported this position of Locke while In *The Wealth of Nations* (1776) Adam Smith extended these ideas to centralization of labor and equipment in factories, division of specialized labor and management of specialization.

<sup>52</sup> Gregory H. Watson and Camille F. DeYong, "Design for Six Sigma: Caveat Emptor," *International Journal of Lean Six Sigma*, Vol. 1, No. 1, 2010, pp. 66-84.

- Put the plan of action into effect with the expected results identified.
- Monitor the plan in progress; make necessary timely adjustments.<sup>53</sup>

The single most significant contribution of Sarasohn and Protzman was to open the minds of the senior business leaders to the fact that there is much to learn from the Western world that may be applicable to Japan. Also, as the senior business leaders it is their responsibility to develop a critical understanding of these lessons and how to apply them in the context of Japanese style management. This obligation became a driver for the high degree of involvement of executives and senior officials in the development of business theories and the transition into industry. It is the author's opinion that these classes led directly to the commitment of dozens of these top leaders to commit to translation into Japanese the most important Western business books, which occurred in the following twenty years and permitted a blended development of unique Japanese ideas with Western theoretical concepts to define Japanese quality management.

### **Influence of the Four Day Statistical Quality Control Course**

When the author was President-elect of ASQ (1999-2000), he interviewed the second President of (then) ASQC, Ralph E. Wareham (1914-2006) to learn about the Society's early history. One of the more surprising revelations was the discovery that prior to Dr. Deming's visit to Japan, JUSE requested (or more precisely the request came from Ichiro Ishikawa (Kaoru Ishikawa was the oldest of his eight sons) through the CCCS Division of General Headquarters of the Supreme Commander of the Allied Powers (where Sarasohn and Protzman worked) the full set of materials for the "Eight Day Statistical Quality Control Course" to be translated into Japanese. This occurred in 1948 while Wareham was President. Based on the translation of this material Ishikawa developed the first JUSE Basic Quality Control course in 1949. However, the lack of satisfaction with being able to instruct this material without having had the practical experience in applying it led to the invitation (also from Ichiro Ishikawa) of Dr. Deming to come to Japan to teach the course. This training program in statistical quality control was based on the material developed by Shewhart and converted into an industrial training program by Dr. Joseph M. Juran (1904-2008) at Western Electric (AT&T) and the subsequent Stanford University course of Professors Holbrook Working (1895-1985) and Eugene L. Grant (1900-1998) and the industrial course of Joseph M. Juran and taught to American industry through the sponsorship of the War Production Board (the original set of instructors for this course were: Eugene L. Grant, W. Edwards Deming, Ralph M. Wareham (General Electric), Joseph M. Juran (AT&T), Harold F. Dodge (1893-1977) (AT&T), Simon Collier (1893-1981) (Johns Manville), and Harry G. Romig

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<sup>53</sup> *ibid.*

(1900-1995) (AT&T).<sup>54</sup> The combination of disciplines of these individuals may also have established an insight for Dr. Ishikawa as he was determining how to study means to transfer application of quality methods into Japanese society. The combination of industry partners under academic leadership (AT&T, General Electric, and Johns Manville, with an academic leader from Stanford University) mirrors exactly the format used for the JUSE Research Committee structure in the coming years.

### **Taiichi Ohno: The Psychological Foundation of Work; People Always Make Mistakes**

Perhaps no other Japanese executive is as famous for their contribution to developing modern management methods as Taiichi Ohno (1912-1990) who was vice president of manufacturing for the Toyota Motor Company for forty years. He is credited with development of Just-in-Time (JIT) management and his oversight of the creation of the Toyota Production System (or TPS). Ohno worked closely with industrial engineering consultant Shigeo Shingo to develop the core of TPS; however, the philosophical framework was almost wholly defined by Ohno. Perhaps nothing so defines Ohno's ideas as his seminal book defining his concepts about work, ***Workplace Management***, which was first published in English in 1988 and is a cornerstone of what the author will refer to as the "Japanese Quality Renaissance."

What did Ohno have to say that was so significant? First, we must observe that perhaps his close association with workers came because he was not far removed from them. Ohno graduated from Nagoya Technical High School in what is now called "Toyota City." He started work in Toyota's spinning division and moved to the automotive work as a production supervisor in 1943. Perhaps some excerpts will indicate why this book is so important for understanding the psychological basis of work in Japan and how it establishes a cultural direction for the subsequent developments of quality. We must remember that although the book was published in English in 1988, the facts and events it describes relate back to the period following the Second World War in the late 1940s which was when TPS evolved out of necessity and resource constraints that were imposed upon Toyota. Some quotations from this book illustrate Ohno's understanding of the human condition with respect to making mistakes

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<sup>54</sup> This information came from the same 1999 interview with ASQ Past-president Ralph E. Wareham. During this interview he disclosed that during the early years of ASQ the General Headquarters of the U. S. Occupation Army in Japan requested that the ASQC provide the newly formed Union of Japanese Scientists and Engineers (this is the source of the origin of the request from Ishikawa's father Ichiro who was the political minister in the Japanese government with oversight for JUSE – a precursor to the Ministry of International Trade and Industry (MITI)) with a copy of the eight-day course in Statistical Quality Control (SQC) that was delivered to American industry as part of the war production improvement effort to teach the methods of Walter A. Shewhart. The request for an instructor also came originally to ASQC and Wareham put JUSE in contact with Deming. As Deming was also known in Japan at this time it is not clear if this was an endorsement for his training or the original recommendation for him to train.

which is one of the cornerstones for his concepts about workplace management:<sup>55, 56, 57</sup>

- “In Japan we have an old proverb that says even a thief is right one-third of the time. If a thief can be right a third of the time, then the average man or woman ought to be right half the time. It seems to me, however, that we should accept that we are going to be wrong the rest of the time.”
- “Even a superior person who is right 70 percent of the time cannot avoid being wrong three times out of 10. Though being wrong, however, that person does not fear being corrected.”
- “We are all human and as much as half of what we do is mistaken; managers may sometimes even tell subordinates things that are wrong. The people managers deal with will gradually begin to turn away unless those managers first adopt the attitude that those under them are human beings, too – and that at least half of what their subordinates say is right.”
- “It seems to me, in short, that the development of this sort of personal humility is an essential condition for building solid powers of persuasion.”
- “Many things in the world cannot be understood without trying them out. Indeed a surprising number of things, when tried, yield results that are exactly opposite to what one expects. This shows us how inescapably dogged by illusion humanity really is. It is quite easy to dispel visual illusions by putting such illusions to the test. A little experimentation in such cases will suffice to persuade people. Illusions involving mental processes, however, are much more difficult to overcome.”
- “When allowing people to try out an idea, the person who gave the instructions in the first place should be present to follow the results closely. If the idea turns out to be a mistake, then the fact that the error is witnessed firsthand will have an effect on the workers. They will realize that since the boss apologizes when he or she makes a mistake, they as workers can feel freer to experiment with whatever ideas might occur to them.”
- “On the other hand, wouldn’t workers be even more cooperative when mistakes are met, not with reproving looks, but with encouragement and the explicit recognition that only five out of 10 ideas that you yourself come up with are right?”
- “In the end, persuasiveness comes when both command-giver and doer see each other as human and only right half the time.”
- “In the workplace ideas can be tested right away.”
- “I think we all labor under misconceptions that exert a tremendous influence over our relations with other people.”
- “What I call illusions or misconceptions can easily turn into conventional wisdom. When

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<sup>55</sup> Taiichi Ohno, *Workplace Management* (Cambridge, MA: Productivity Press, 1988).

<sup>56</sup> Taiichi Ohno, *Toyota Production System* (Cambridge, MA: Productivity Press, 1988).

<sup>57</sup> Taiichi Ohno, *Just-in-Time for Today and Tomorrow* (Cambridge, MA: Productivity Press, 1988).

that happens, either debates become endless or you act so haphazardly that things do not move forward. Conventional wisdom contains illusory elements that we want to believe are correct.”

Another aspect that is important is Ohno’s definition of work. He distinguishes between two Japanese characters – ‘moves’ and ‘works’ – which have only a single kanji element separating the two – the sign for ‘person’ which is present in ‘works’ and absent from ‘moves.’ Thus, one of the illusions that Toyota workers had was to confuse human movement with work.

- “The right way to write the character for ‘work’ is to combine ‘person’ with ‘movement.’”
- “For Toyota workers, moving was the same as working.”
- “I think that Japanese characters make a significant contribution to industry in terms of generating illusions or letting us see illusions for what they are.”
- “I often tell supervisors that they should train themselves to distinguish between movement and work – in other words, to cultivate an ability to find waste. The idea is to question the connection between movement and the task at hand.”

According to Ohno, work improvement activity should occur when business is good as this is a good time to separate waste from motion and focus on real work:

- “Rationalization ought to be carried out when business is booming or when you are making money. The term ‘rationalization’ is often used in Japan to indicate activities undertaken to upgrade technology, improve quality, and reduce cost. If you don’t rationalize until you have run out of money, you will be left with no alternative but to fire people.”
- “The idea is to behave at all times the way you would if business were bad.”
- “The crucially important point in rationalization is to make operations more rational when business is good and the company is doing well.”
- “We need to lower costs in a truly rational, scientific way by totally eliminating waste.”
- “If a line stops because there are no more parts, the workers will go sweep up somewhere so they keep themselves busy. Even when no working, they have the illusion that the job is getting done because they are expending energy (moving).”
- “Everyone confuses motion with work. As a result, we look only at results and tend to assume that a threefold increase means that productivity has risen because of a terrible intensification of labor.”
- “It the easiest thing in the world to raise productivity by a factor of three if the same operation is conducted properly.”
- “I often told the technical people – who are inevitably rigid – not to cling to specific ideas, reminding them of the saying, ‘a wise man knows how to adapt.’ ‘Learn to adapt,’ I told them. ‘Be wise!’”

- “In the final analysis, however, rationalization means doing things in conformity with reason, so by rights it should hold no surprises.”

Ohno blended the ideas about the natural occurrence of mistakes (illusions or misconceptions on how to work which become ingrained in work) and rationalization of work or adapting work to conformity of shared reason to formulate his concept of continuous improvement:

- “Operational improvement (kaizen) means coming up with better methods using existing equipment. The important thing is to think of new work methods, not to make new tools or equipment.”
- “Another thing about improvement (kaizen) is that there are at least three of four different kinds of improvement: operational improvement, equipment improvement, process improvement and so forth. Improving operations comes first.”
- “Quality is built in at each process, so that conducting inspections at that point may mean dispensing with a final inspection process completely, or it may mean that only a small section of the product needs to be checked at the end.”
- “It seems only reasonable that the person who makes something should inspect it. If a flaw is likely to show up in some item unless it is machined right away, then that much work is done at the current process so that proper handling further on can generate flawless goods. Elsewhere, products will go right through to the final process before the flaws are found. They get to the end and then drop out [*editor comment: rejected as either scrap or assigned for rework*]. Doesn’t this constitute a tremendous loss?”
- “The basic Toyota philosophy clearly distinguishes between work carried out by machines and work carried out by a person. Human beings work at tasks that only they can perform.”
- “In this way, the human does his or her work and the machine does its work. Before anything else happens, these two must be clearly distinguished.”
- “If a particular device or anything else is changed in a certain way, that *change* is the improvement – even though some changes are for the worse. Any change for the worse has to be corrected right away. And that means *improved* and not simply returned to the original state. Although we use what are called ‘standard operations,’ the standards involved must be changed constantly. You should never think that standards are perfect. Standards are a kind of basis for improvement. If something deteriorates, then the change is for the worse; if it gets better, then it is an improvement. Human beings discover which is which by chance, so it would be silly not to keep changing things.”
- “You should start off by following standard operations. As you proceed, you can then expect suggestions for improvement to arise from aspects of the operations that are tedious or that could be made easier or otherwise improved. At that point, you should incorporate those new ideas into new standards.”

- “If you are running an operation 10 times, take the shortest time as the standard. Some people say this makes the standard too stringent, but what is stringent about it? Whatever method takes the shortest time is the easiest.”
- “The important thing is to figure out why you can’t perform the task in the minimum time and then teach others how to avoid the problem.”

Ohno relied upon participatory management with workers engaged in the inspection of the quality of their own work and generating process improvements which come mainly through experimentation with changes that reduce cycle time and eliminate illusions that inhibit the achievement of minimal cycle time. This is the conceptual foundation for *poke yoke* (mistake-proofing). Ohno summarized his approach as a focus on the quality of work and follows:

- “Only work that is needed is real work ... the rest is waste. True efficiency comes when we produce zero waste and bring the percentage of work to 100 percent. The preliminary step toward the application of the Toyota Production System is to identify wastes completely.”
- “It’s simple. All we are doing is looking at the time line. From the moment a customer gives us an order to the point when we collect their cash. And we are always reducing this time by removing the non-value-added wastes.”
- “In Japan, it is said that ‘time is the shadow of motion.’ In most cases, delay is generated by differences in operator motion and sequence. The job of the supervisor is to train workers. At the same time workers must be taught to help each other. Carrying our standard work methods in the cycle time helps worker harmony grow.”
- “A proper work procedure cannot be written from a desk. It must be tried and revised many times in the production plant. Furthermore, it must be a procedure that anybody can understand on sight.”
- “We have eliminated waste by examining available resources, rearranging machines, improving machining processes, installing autonomous systems, improving tools, analyzing transportation methods, and optimizing the amount of materials at hand for machining. High production efficiency has also been maintained by preventing the recurrence of defective products, operational mistakes, and accidents, and also by incorporating worker’s ideas. All of this is possible because of the inconspicuous standard work sheet.”

Additional implications about how to manage work at the *gemba* based on extension of the ideas of Ohno will be presented following a brief discussion of the management concepts of Konosuke Matsushita, founder of the Japanese corporation that bears his name and is widely known for its international electronics brand name of Panasonic who was in turn influenced very deeply by the Japanese lectures and other written works of Peter F. Drucker (1909-2005) that had been translated into Japanese.

## Konosuke Matsushita: The Sanno Mind and Business Management

Konosuke Matsushita (1894-1989), founder of the globally respected Panasonic brand was one of the first proponents of social responsibility. He declared that the fundamental management objective is to fulfill our responsibilities as industrialists by devoting ourselves to the “progress and development of society and the well-being of people throughout business activity, thereby enhancing the quality of life throughout the world.” Based upon this objective, he established the company creed: “Progress and development can be realized only through the combined efforts and cooperation of each employee of our company. United in spirit, we pledge to perform our corporate duties with dedication, diligence, and integrity.” Matsushita published over 40 books in Japanese to describe his insights into business and its place in society (with five of these translated into English).<sup>58,59,60,61,62</sup> Matsushita’s vision of a social mission for the corporation and inspiring employees to take pride in the contribution that they are making to society also called for diligence against taking a narrow bottom-line orientation to business. Matsushita, like Ohno at Toyota, created a structured way of thinking about work that became a coherent system which, also like Ohno, is based on a pragmatic and humanistic approach to work rather than an academic one. In fact, Matsushita was so focused on assuring that his philosophy addressed the basic questions of management that he founded the PHP Institute in 1946 to address such questions as: what makes people truly happy in their work environment; what are corporations established; what is the service of corporations; and who do they serve? It was within the PHP Institute that Matsushita formulated his ideas in an operating philosophy that he practiced in his company and shared with the rest of Japan as well as the world.

One of the key emphases of Matsushita is the development of the *sunao* mind – a human mind that observes reality as it is without bias, prejudice or a priori assumptions. He believed that human beings are inherently worthy of respect and that it is the objective of the corporation to unleash the creativity and capability of its people through their development.

Some quotations from Matsushita’s writing help to reinforce his emphasis:

- “Management philosophy must be founded on the laws of nature and society.”
- “All managers must constantly ask themselves: ‘Why is this company necessary?’ And the

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<sup>58</sup> Konosuke Matsushita, *Thoughts on Man* (Tokyo: PHP Institute, 1982).

<sup>59</sup> Konosuke Matsushita, *As I See It* (Kyoto: PHP Institute, 1989).

<sup>60</sup> Konosuke Matsushita, *Not for Bread Alone* (Berkeley, CA: Berkeley Publications, 1994).

<sup>61</sup> Konosuke Matsushita and Masaharu Matsushita, *The Matsushita Perspective: A Business Philosophy Handbook* (Tokyo: PHP Institute, 1997).

<sup>62</sup> Konosuke Matsushita, *The Path: Find Fulfillment through Prosperity from Japan’s Father of Management* (New York: McGraw-Hill, 2010).

answer – that the enterprise exists to benefit people and improve society – should be the same for all businesses that are involved in supplying goods and services.”

- “Critics of Japanese-style [*consensus*] decision-making say that this is too time-consuming. Bureaucratic red tape exists even in private corporations, and that tends to prolong the decision-making process. But it is possible to make prompt decisions and still remain faithful to the principles of decision-making by consensus.”
- “You lay down the basic policy and guidelines according to which managers should make decisions on your behalf. You must make certain, of course, that they come to you for the important decisions and that they too, delegate responsibility to their subordinates... In this way everyone in the corporation can take part in the decision-making process. But for this division of authority to work smoothly, two things are necessary. First everyone must think and act as a manager in their own right; everyone must be their own boss. Second, a close-knit network of communication and consultation must cover the entire corporate organization. More important than decisions themselves is the daily flow of information among the employees, between the managers and their staff, between different sections of the company. The right hand cannot make a correct decision without adequate knowledge of what the left hand is doing.”
- “Ultimately, your decisions reflect your view of life, business, and society. Correct decisions are products of a sound philosophy. Thus decision makers, from the top all the way down to the bottom of the management ladder, must make constant efforts to acquire new knowledge and refine their sense of judgment.”
- “As human beings we become aware of both our capacity and our responsibilities. By fulfilling our responsibilities and expanding our capacities, we can escape sorrow and suffering and realize our basic true goodness. By applying the correct process to each material, man demonstrates his mastery, as well as his understanding, of the object and what is needed to achieve its full potential.”
- “No matter how successful you are in business, along the way you will have made mistakes that could have been disastrous under different conditions. If arrogance blinds you to your mistakes, however small, they will be a constant source of danger in the future. But if you think your success was influenced by good luck, this will naturally lead you to reflect on the errors you made and to correct the thinking that led to them.”
- “What about failure then? If you indulge in self-pity and believe that your misfortune was due to bad luck, you will not be able to turn the experience into a positive tool to help you in the future. Yet, by holding yourself responsible for your failure, you will reduce the chances of another failure occurring.”
- “From the very first, I strongly believed that developing every employee’s full potential would lead to improvement in our products.”
- “How does a manager go about developing this potential in others? The first and most

important method is to ensure that the company strictly upholds the principles of its management philosophy in its daily operations.”

- “Another way of getting people to improve themselves is to delegate authority to them, which encourages them to take the initiative and assume responsibility. People will develop if you give them the chance to shape their management skills and use them, no matter how trivial the job may seem. A manager should ... let the person who is doing the job organize and handle it in his own way, bringing all his talents into play. In the end, this will make him a better, more capable person, and thereby a better employee.... Naturally, the delegation of authority does not simply mean letting everyone do whatever he wants. Basic policies must be made clear so that chaos does not result. The delegation of authority is always within the parameters of a clear policy outline.”
- “Strength comes from the wisdom of many.”
- “Of the many qualities that I consider essential for good management, none can compare in importance to the *sunao* mind, which allow all the best qualities of the manager to come to the fore. *Sunao* is a Japanese word that has no English equivalent. It denotes a state of open-mindedness, an absence of mental rigidity, and an ability to see things exactly for what they are. A *sunao* mind may be described as an untrapped mind, or an unhindered mind, one that is free from all the prejudice and emotional bias that usually colors how we perceive what is around us.”
- “A manager with a *sunao* mind will make fewer mistakes, and even if he does make a mistake he will readily admit it and accept criticism in order to improve himself. A successful manager is one who acts in accordance with the laws of nature, listens to his employees, learns from their counsel, and puts their collective wisdom into daily use.”
- “*Sunao* has a connotation of being obedient, but I would rather call it a state of mind that is receptive without being passive. Your mind is *sunao* when you can see things as they really are without being “trapped” in one pattern of thought.”
- “Some qualities associated with this type of mind are tolerance, benevolence, honesty, conviction, and wisdom. While man can never attain the perfection of God, as he cultivates the *sunao* mind, he will attain qualities that seem godlike.”
- “During the civil wars that took place in the late fifteenth century, many warriors practiced Zen. Besides an emphasis on austerity, Zen training stressed meditation as a means of freeing the mind from material concerns and personal prejudices. The Zen mind – which prepared warriors to go into battle without fear of death – bears a certain resemblance to the *sunao* mind. Although I am not suggesting that management needs to be as belligerent as though it were at war, I believe the *sunao* mind prepares one well for competition and preserves one from the fear of failure.”
- “There are many ways of using your employees, but the most important one is trusting and delegating tasks to them. As well as making them happy, this also instills in them a sense of

responsibility. A person entrusted with a task will do his best to carry it out using all the resources at hand. People tend to give their best only when they are trusted.”

- “None of us can escape problems as long as we are human. Thus, lesson one in the art of problem-solving is to face problems squarely. Do not evade the issue at hand and do something about it before it gets out of hand. Lesson two is to remember that all problems are relative. Lesson three is to think of problems as medicine or fertilizer for your growth. A crisis is a golden opportunity to test your true ability and toughness. When a problem arises and you find no solution to it, try to look at the issue from an entirely new perspective. Do not let preconceptions guide your thinking. Question your assumptions, one by one and you will free yourself from the tunnel vision you have been led into. Try to see the other side of the coin and you will begin to see a ray of hope. If your short-term prospects are gloomy, consider that as a transitional phase; the future can only be brighter. Imagine yourself standing in the other fellow’s shoes and evaluate the problem from his perspective. Flexible thinking is the theme of lesson four. Flexible thinking and a fresh perspective can facilitate problem-solving. Remember: there are always choices open to you, so choose the best course of action from among the many alternatives available.”
- “It is true that we Japanese tend to attach greater importance to motivation and the effort that one puts into one’s work than to the results. If you mean well and can prove that you have done your best, chances are that you will be forgiven for results that fall short of the mark. Conversely, people expect that forgiveness for blunders will be forthcoming if only they plead their sincerity convincingly. Even the most elaborate quality system is sometimes baffled by human error. You will never win the trust of others if your words are not backed up by action. This emphasis on practice is crucial. Sincerity in this sense is not only the core of healthy human relations; it is also the key to efficiency and success in business operations. We must remember that demonstrations of sincerity made without firm commitment to principles can easily degenerate into dishonesty or hypocrisy. In Japan, as elsewhere, words, however sincerely meant, need to be accompanied by appropriate action if they are to be believed.”
- “Paradoxical as it may seem, a person responsible for a major failure has usually done his best.”
- “No one in the entire world can stand in the way of your success. When you are thwarted, it is not some external circumstances, but a cause that is within yourself. Never forget that what constitutes an obstacle is a fault that lies within, not outside, yourself.”
- “I would like to reiterate how important it is for a business to encourage a meeting of hearts and of minds. Ultimately, a company is the sum total of the people working in it, and doing business means dealing with the people who are its suppliers, dealers, and customers. The people who comprise the company must have not only integrity and a sense of personal responsibility, but also a great deal of human warmth, rapport, and empathy with others.”

- “Only by drawing on the combined brainpower of all its employees can a firm face up to the turbulence and constraints of today’s business environment.”
- “My unfinished work is much larger in scope than the affairs of a single corporation: to bring about peace and happiness through prosperity not only in Japan, but throughout the whole world.”

### **Peter F. Drucker: Developing the Responsible Worker**

Matsushita was influenced by the mid-1950s lectures of Peter Drucker in Japan as well as by his two books that were translated into Japanese in 1957 (*The Practice of Management*) and 1964 (*Managing for Results*). When one observes the practical statements made by Drucker it is easy to see why Matsushita was affected:<sup>63,64</sup>

- “There is nothing as useless as doing efficiently that which should not be done at all.”
- “Quality in a product or service is not what the supplier puts in. It is what the customer gets out and is willing to pay for. A product is not quality because it is hard to make and costs a lot of money, as manufacturers typically believe. This is incompetence. Customers pay only for what is of use to them and gives them value. Nothing else constitutes quality.”

Drucker also seems to be the original source for an important concept which was also espoused by both Dr. W. Edwards Deming and Dr. Joseph M. Juran in their discussions with the Japanese in the late 1950s and which had a direct effect on the development of motivation theory as well as the general Japanese theory of work. Chapters 20-23 of Drucker’s book *The Practice of Management* (1954) is the earliest source for a set of criteria on worker motivation and it establishes the common bond among Drucker, Juran and Deming on this subject. Another reason for drawing this comparison is that in 1951 while Drucker was just beginning to prepare his manuscript all three had been professors since 1946 at the New York University’s Graduate School of Business (where Drucker was the Dean). In a 2000 interview with Drucker the author had an opportunity to gain insights into his thinking and way of working. The result of this interview was a videotape used for Drucker’s keynote address at the ASQ Annual Quality Congress as well as a feature story about his ideas on quality.<sup>65</sup> During this interview Drucker revealed his habit of exchanging prepublication manuscripts with Juran to provide an external review and critique. Although both Drucker and Juran were alienated from Deming later in their life, it would seem highly natural that Deming also participated in these exchanges at this early time as the alienation did not occur until after they ceased working together. So, what did Drucker have to say that was so influential? Drucker’s early writing demonstrates his impact on

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<sup>63</sup> Peter F. Drucker, *The Practice of Management* (New York: Harper and Row, 1954).

<sup>64</sup> Peter F. Drucker, *Managing for Results* (New York: Harper and Row, 1964).

<sup>65</sup> Gregory H. Watson, “Peter F. Drucker: Delivering Value to Customers,” *Quality Progress*, May 2002, 55-61.

Deming, Juran and, eventually the Japanese theory of motivation. The first set of quotations establishes the perspective for his views:

- “Executives who take responsibility for contribution in their own work will as a rule demand that their subordinates take responsibility too.”
- “The question: ‘Who has to use my output for it to become effective?’ immediately shows up the importance of people who are not in line of authority, either upward or downward, from and to the individual executive. It underlines what is the reality of a knowledge organization: The effective work is actually done in and by teams of people of diverse knowledge and skills. These people have to work together voluntarily and according to the logic of the situation and the demands of the task, rather than according to a formal jurisdictional structure.”
- “In hiring a worker one always hires the whole man. It is evident that one cannot ‘hire a hand’; its owner always comes with it.”
- “That one can hire only a whole man rather than any part thereof explains why the improvement of human effectiveness in work is the greatest opportunity for improvement of performance and of results.”
- “When we talk about the management of worker and work, we are talking about a complex subject. First, we are dealing with the worker as the human resource. We have to ask what the specific properties of this resource are. And we get entirely different answers according to whether we put stress on the word ‘resource’ or on the word ‘human.’ Second, we must ask what demands the enterprise makes on the worker in its capacity as the organ of society responsible for getting the work done, and what demands the worker makes on the enterprise in his capacity as a human being, an individual and a citizen? Finally, there is an economic dimension grounded in the fact that the enterprise is both the wealth-producing organ of society and the source of the worker’s livelihood. This means that in managing worker and work we must reconcile two different economic systems. There is a conflict between wage at cost and wage as income which must be harmonized. And there is the problem of the worker’s relation to the enterprise’s fundamental requirement of profitability.”
- “If we look at the worker as a resource, comparable to all other resources but for the fact that it is human, we have to find out how best to utilize him in the same way in which we look at copper or at water power as specific resources. This is an engineering approach.”
- “The human being has one set of qualities possessed by no other resource; it has the ability to co-ordinate, to integrate, to judge and to imagine.”
- “But we must also consider man at work as a human being. We must, in other words, also put the emphasis on ‘human.’ This approach focuses on man as a moral and a social creature and asks how work should be organized to fit his qualities as a person. As a

resource, man can be 'utilized.' A person, however, can only utilize himself. This is the great and ultimate distinction."

- "The human being, unlike any other resource, has absolute control over whether he works at all. The human resource must therefore always be motivated to work."
- [This comment refers to an article that Drucker wrote that appeared as 'Productivity is an Attitude' in the April 1952, issue of *Nation's Business*] "In other words, it is worker's motivation that controls worker's output."<sup>66</sup>
- "That fear has gone as the major motivation is all to the good. It is far too potent to be relied upon except for emergencies. Above all, we used the wrong kind of fear. Fear of a threat to the community unites; there is no greater stimulus to effort than common peril. But fear of someone within the community divides and corrodes. It corrupts both him who uses fear and him who fears. That we have got rid of fear as motivation to work is therefore a major achievement. Otherwise managing the worker in an industrial society would not be possible."
- "But contrary to what some human-relations experts assert, to remove fear does not by itself motivate. All it creates is a vacuum. We cannot sit back and expect worker motivation to arise spontaneously, now that fear is gone. We must create a positive motivation to take its place. This is one of the central, one of the most difficult, one of the most urgent tasks facing management."
- "The human being also has control over how well he works and how much he works, over the quality and quantity of production. He participates in the process actively."
- "Under the new technology nobody 'tends' machines; the semi-skilled operations servicing the machine – handing and feeding in materials, starting and stopping – are performed by the machine itself. As a result the worker, instead of being paced by the machine, paces it. He determines what it does and how well it does – by setting it, directing it, maintaining it. His control is complete; and because the production process is integrated, the way each man controls his own job shapes the performance of the entire operation. The worker's participation in modern mass production and process production is of the essence – it may well be the critical and controlling factor."
- "The human being works in groups and he forms groups to work. And a group, no matter how formed or why, soon focuses on a task. Group relationships influence the task; the task in turn influences personal relationships within the group. At the same time the human being remains an individual. Group and individual must therefore be brought into

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<sup>66</sup> Since Deming's original lectures in Japan were in June-August 1950 and were dedicated to delivery of the standard production quality control material, rather than his own theory of management, which was still evolving, it is clear that Drucker's public writings on motivation preceded those of Deming. Indeed during this time Juran was evolving toward management as he became engaged in teaching at NYU and subsequently, he formed an early relationship with the New York City-based American Management Association (AMA).

harmony in the organization of work.<sup>67</sup> This means that work must always be organized in such a way that whatever strength, initiative, responsibility and competence there is in individuals becomes a source of strength and performance of the entire group. This is the first principle of organization; indeed, it is practically a definition of the purpose of an organization.”

- “Finally, man is distinguished from all other resources in that his ‘development’ is not something that is done to him; it is not another or better way of using existing properties. It is growth; and growth is always from within. The work therefore must encourage the growth of the individual and must direct it – otherwise it fails to take full advantage of the specific properties of the human resource.”
- “This means that the job must always challenge the worker. Nothing is more contrary to the nature of the human resource than the common attempt to find the ‘average work load’ for the ‘average worker.’ This whole idea is based on a disproven psychology which equated learning speed with learning ability. It is also based on the belief that an individual worker is most productive the less control he has, the less he participates – and that is a complete misunderstanding of the human resource. Above all, the concept of the average work to be performed is inevitably one which considers average what any but a physically or mentally handicapped person could do. The man who is just barely normal what who has neither aptitude nor liking for the job becomes the measure of all things, his performance the norm. And human work becomes something that requires neither skill, effort, nor thought, presents no challenge, allows of no differentiation between the highly skilled and highly motivated and the near-moron. This is poor engineering. It is the result of constantly lowering performance norms rather than in raising the performance levels of the entire work group. IT destroys the productivity of the human resource. The nature of man demands that the performance of the best, not of the poorest worker should become the goal for all.”
- “If we turn to the demands of enterprise and worker on each other, the first question is: What must the enterprise demand in order to get the work done? The standard answer to this is the catch phrase ‘a fair day’s labor for a fair day’s pay.’ Unfortunately, no one has ever been able to figure out what is fair either in respect to labor or to pay. The real trouble with the phrase is, however, that it demands too little and demands the wrong thing. What the enterprise must demand of the worker is that he willingly directs his efforts toward the

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<sup>67</sup> The Samurai code of chivalry is called “*bushido*” or the “honorable way of the warrior.” It emphasizes piety, loyalty, duty, honor, and self-sacrifice which are forged into the concept of “*giri*” (an obligation for reciprocity that is very often mistaken as politeness) and self-less dedication to “*wa*” which in classic Chinese texts of about 2,000 years ago is the word that was used to represent the name of Japan (we must remember that written Japanese is a derivative of Chinese). Today “*wa*” means group harmony, peace and balance. It is a motivator and “*wa*” or group harmony is action outcome that is aligned with the cultural goal of consensus in social relations at work.

goals of the enterprise.”

- “The enterprise must demand willing dedication. It cannot aim at acquiescence. It must aim at building aggressive *esprit de corps*.”
- “The enterprise must expect of the worker not the passive acceptance of a physical chore, but the active assumption of responsibility for the enterprise’s results.”
- “There is a second demand the enterprise must make on the worker: that he be willing to accept change. Innovation is a necessary function of business enterprise; it is one of its major social responsibilities. It requires, however, that people change- their work, their habits, their group relations. The human being has a capacity to change beyond all other animals, but it is not unlimited.”
- “Change is not only an intellectual process but a psychological one as well. It is not true, as a good many industrial psychologists assert, that human nature resists change. On the contrary, no being in heaven or earth is greedier for new things. But there are conditions for man’s psychological readiness to change. The change must appear rational to him; man always presents to himself as rational even his most irrational, most erratic, changes. It must appear as an improvement. And it must not be so rapid or so grate as to obliterate the psychological landmarks which make a man feel at home: his understanding of his work, his relations to his fellow-workers, his concepts of skill, prestige and social standing in certain jobs and so forth. Change will meet resistance unless it clearly and visibly strengthens man’s psychological security; and man being mortal, frail and limited, his security is always precarious. The enterprise’s demand for the worker’s ability to change therefore requires positive action to make it possible for him to change.”
- “The worker in making his demands on the enterprise is a whole man not an economic subsection of it. He demands, over and above economic returns, returns as an individual, a person, a citizen. He demands the fulfillment of status and function in his job and through his work. He demands the realization of the promises to the individual on which society rests; among them the promise of justice through equal opportunities for advancement. He demands that his work be meaningful and that it be serious. High standards of performance, a high degree of competence in the way the work is organized and managed, and visible signs of management’s concerns for good work are among the most important things demanded of an enterprise at the end of its management by the worker.”

Drucker also believed that the personnel management function was ‘intellectually bankrupt’ or ‘sterile’ in its ability to deal with the true dynamics of the workplace. Drucker was very strongly influenced by Douglas McGregor (1906-1964) whom he considered ‘must reading’ for managers with specific attention to his ideas on managerial responsibility. Drucker observed that there

are three misconceptions in the role of human resources professionals:<sup>68</sup>

- “First, it assumes that people do not want to work. As Douglas McGregor points out, it views ‘work as a kind of punishment that people must undergo in order to get satisfaction elsewhere.’ It tends therefore to put emphasis on satisfactions outside and beyond the work. Secondly, (it) looks upon the management of the worker and work as the job of a specialist rather than as part of the manager’s job. It is the classical example of a staff department and the confusion the staff concept causes.”
- “The best textbook of personal administration starts out by saying that the first jobs of the personnel administrator are to advise operating management and to diagnose the moral of the organization as an effective team. But then it spends 301 of its 321 pages on the programs that the department itself organizes and manages.” This means, in effect, either that personnel administration has to usurp the functions and responsibility of the operating manager; or else it means that operating managers, in self-defense, have to confine personnel administration to the handling of incidental chores, that is, to those things that are not essential to the management of worker and work.”
- “Finally, personnel administration tends to be ‘fire-fighting,’ to see ‘personnel’ as concerned with ‘problems’ and ‘headaches’ that threaten the otherwise smooth and unruffled course of production.”
- “But worker and work simply cannot be managed if trouble is the focus. It is not even enough to make ‘fire prevention’ rather than ‘fire-fighting’ the focus; managing worker and work must focus on the positive and must build on underlying strength and harmony.”
- “Human Relations also lacks an adequate focus on work. Positive motivation must have their center in work and job, yet, Human Relations puts all the stress on inter-personal relations and on the ‘informal group.’ Its starting point was in individual psychology, rather than in an analysis of worker and work. As a result, it assumes that it is immaterial what kind of work a man does since it is only his relation to his fellow men that determines his attitude, his behavior and his effectiveness. Its favorite saying that ‘the happy worker is an efficient and a productive worker,’ though a neat epigram, is at best a half truth. It is not the business of the enterprise to create happiness but to sell and make shoes. Nor can the worker be happy in the abstract. Human Relations refuses to accept the fact that organized groups are not just the extension of individuals but have their own relationships, involving a real and healthy problem of power, and conflict which are not conflicts of personalities, but conflicts of vision and interests; that is, in other words, there is a political sphere. This shows in the almost panicky fear of the labor union that runs through the entire work of the original Human Relations School at Harvard University.”

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<sup>68</sup> Douglas McGregor, “Line Management’s Responsibility for Human Relations,” *American Management Association Manufacturing Series*, Number 213, New York, 1953).

Likewise, Drucker also had comments about the approach of Frederick Taylor and the school of scientific management which were then later echoed by Juran, and by implication also Deming. When Drucker wrote *The Practice of Management* in 1954, the methodology that was called 'Taylorism' (to represent the concepts of Taylor) known generically as "Scientific Management" was the most widely practiced management concept. But, Drucker felt that this methodology had also stagnated and did not address modern necessities of work and workers which was truly focused on the actual management of both worker and work:

- "Scientific Management focuses on the work. Its core is the organized study of work, the analysis of work in to its simplest elements and systematic improvement of the worker's performance of each of these elements. Scientific Management has both basic concepts and easily applicable tools and techniques. And it has no difficulty proving the contribution it makes; its results in the form of higher output are visible and readily measurable."
- "Indeed Scientific Management is all but a systematic philosophy of worker and work. As long as industrial society endures, we shall never lose again the insight that human work can be studied systematically, can be analyzed, can be improved by work on its elementary parts."
- "Few people had ever looked at human work systematically until Frederick W. Taylor started to do so around 1885. Work was taken for granted; and it is an axiom that one never sees what one takes for granted. Scientific Management was thus one of the great, liberating, pioneering insights. Without it a real study of human beings at work would be impossible. Without it we could never, in managing worker and work, go beyond good intentions, exhortations or the 'speed up.' Although its conclusions have proved dubious, its basic insight is a necessary for thought and work in the field."
- "When we started, after World War II, to give assistance to Western Europe's attempt to improve productivity, we thought that that meant primarily the exportation of Scientific Management techniques. We preached that 'productivity is an attitude.' We stressed the importance of mass distribution, of capital investment, of research. But what we actually did was to send over industrial engineers equipped with Scientific Management tools and imbued with its philosophy. And where the European industrialist on the whole turned a deaf ear to our recommendations of mass distribution, capital investment or research, he took to Scientific Management techniques with alacrity. For, in common with the rest of the outside world, he had come to believe – though wrongly – that Scientific Management was the essence of America's industrial achievement."
- "Yet Scientific Management, too, has been stagnant for a long time. It is the oldest of our three approaches to the management of worker and work; it rose together with the new profession of engineering in the last decades of the nineteenth century. It also ran dry first. From 1890 to 1920 Scientific Management produced one brilliant insight after another –

Taylor, Fayol, Gantt, and the Gilbreths. During the last thirty years, it has given us little but pedestrian and wearisome tomes on the techniques, if not on the gadgets, of narrower and narrower specialties. There are, of course, exceptions – especially Mrs. Lillian Gilbreth and the late Harry Hopf. But on the whole, there have been oceans of paper, but few, if any, new insights. There has been a great deal of refinement; yet the most mature and cogent statement on scientific management is still the testimony Taylor gave before a Special Committee of the House of Representatives in 1912.”

- “The reason for this is that Scientific Management, despite all its worldly success, has not succeeded in solving the problem of managing worker and work. As so often happens in the history of ideas, the insight is only half an insight. It has two blind spots: one engineering and one philosophical. What it does not see is as important as what it sees; indeed, if we do not learn to see where Scientific Management has been blind, we may lose even the benefit of its genuine vision.”
- “The first of these blind spots is the belief that because we must analyze work into its simplest constituent motions, we must also organize it as a series of individual motions, each, if possible, carried out by an individual worker. It is possible that Taylor himself saw the need to integrate; Harry Hopf certainly did. But practically all other writers – and all practitioners – see in the individual motion the essence of good work organization.”
- “This is false logic. It confuses a principle of analysis with a principle of action. To take apart and to put together are different things. To confuse the two is grossly unscientific. For the beginning of science is the realization that classification, while absolutely necessary, does not tell us any important fact about the nature of the thing classified. The belief that work is best performed as it is analyzed is also wretched engineering. The confusion between analysis of work and action in work is a misunderstanding of the properties of the human resource. Scientific Management purports to organize human work. But it assumes – without any attempt to test or verify the assumption – that the human being is a machine tool (although a poorly designed one). It is perfectly true that we have to analyze the work into its constituent motions. It is true that we can best improve work by improving the way the individual operations are performed. But it is simply not true that the closer the work comes to confining itself to the individual motion or operation, the better the human being will perform it.”
- “Let us look at man only as a productive resource and only from the point of view of engineers concerned with input and output. We have no choice but to accept the fact that man’s specific contribution is always to perform many motions, to integrate, to balance, to control, to measure, to judge. The individual operations must indeed be analyzed, studied, and improved. But the human resource will be utilized productively only if a *job* is being formed out of the operations, a job that puts to work the man’s specific qualities.”
- “The second blind spot of Scientific Management is the ‘divorce of planning from doing’ –

one of its cardinal tenets. Again a sound analytical principle is being mistaken for a principle of action. But in addition the divorce of planning from doing reflects a dubious and dangerous philosophical concept of an elite which has a monopoly on esoteric knowledge entitling it to manipulate the unwashed peasantry.”

- “To have discovered that planning is different from doing was one of Taylor’s most valuable insights. To emphasize that the work will become the easier, more effective, more productive, the more we plan before we do, was a greater contribution to America’s industrial rise than stopwatch or time-and-motion study. On it rests the entire structure of modern management. That we are able today to speak seriously and with meaning of management by objectives is a direct result of Taylor’s discovery of planning as a separate part of the job, and of his emphasis on its importance.”
- “But it does not follow from the separation of planning and doing in the analysis of work that the planner and the doer should be two different people. It does not follow that the industrial world should be divided into two classes of people; a few who decide what is to be done, design the job, set the pace, rhythm and motions, and order others about; and the many who do what and as they are being told.”
- “The divorce of planning from doing deprives us of the full benefit of Scientific Management. It sharply cuts down the yield to be obtained from the analysis of work, and especially the yield to be obtained from planning. We saw in IBM that productivity greatly increased when the workers were given responsibility for planning their work. The same increase in productivity (not to mention the improvement in worker attitude and pride) had been obtained wherever we have combined the divorce of planning from doing with the marriage of planner to doer.”
- “The two blind spots of traditional Scientific Management explain why its application always increases the worker’s resistance to change. Because he is being taught individual motions rather than given a job, his ability to unlearn is stilled rather than developed. He acquires experience and habit rather than knowledge and understanding. Because the worker is supposed to do rather than to know – let alone to plan – every change represents the challenge of the incomprehensible and therefore threatens his psychological security.”
- “When it comes to the job itself, however, the problem is not to dissect it into parts or motions, but to *put together an integrated whole*. This is the new task.”
- “The first requirement of effective work organization is, therefore, that it make the group and its social cohesion serve performance in the job. At the least conflict between the two must be avoided. To achieve this, there must be a job for the group to do, that is, a number of people working as a team must have at task that is an integrated whole of motions, constitutes a definite stage in the process and contains some challenge to skill or judgment. Moreover, the individuals must be organized as a true group organized for working together rather than against each other, rewarded for their joint as well as their individual efforts,

identified for themselves as well as for the pole around them as a cohesive social unit, proud of themselves, of each other and of their performance.”

Thus, Drucker sees that three ingredients are necessary to a modern management approach that encourages effective work by individuals and groups: the approach must take a systems perspective, incorporate planning in the doing, and define responsibility at the individual level as a means to engage and motivate the workers. These ideas on work become clearer as we observe the following quotations:

- “Satisfaction is, above all, inadequate as motivation. It is passive acquiescence. A man who is deeply dissatisfied may quit, or if he stays, he is likely to become bitter and move into opposition to company and management. But what does the man *do* who is satisfied? After all, the enterprise must demand of the worker that he do something, willingly, and with personal involvement. It must have performance, not just acquiescence. The present concern with satisfaction arose out of the realization that fear no longer supplies the motivation for the worker in industrial society. But instead of facing the problem created by the disappearance of fear as the motive, the concern with satisfaction sidesteps it. What we need is to replace the externally imposed spur of fear with an internal self-motivation for performance. Responsibility – not satisfaction – is the only thing that will serve. One can be satisfied with what somebody else is doing; but to perform one has to take responsibility for one’s own actions and their impact. To perform, one has, in fact, to be dissatisfied, to want to do better.”

This in turn raises the question that is at the heart of the Japanese theory of motivation: what does it take to hold a worker accountable for the quality of their work? Drucker answers this question with the idea of responsibility. Without managements delegation to workers of responsibility they cannot be held accountable. So, if management does not have the method of fear, then it must attempt encouragement and motivation by building the self-esteem of the worker because they make the critical decisions that are related to their work. Drucker believed so strongly in these ideas that he called this a “manifesto” for management. Drucker discussed his ideas about developing responsibility in workers:

- “There are four ways by which we can attempt to reach the goal of the responsible worker. They are careful placement, high standards of performance, providing the worker with the information needed to control himself, and with opportunities for participation that will give him a managerial vision. All four are necessary.”

Placement is a prerequisite to high motivation – get good people and put them in a job that is good for them. It is the final three points where management must manage. Nothing challenges people as much as to give them a job that makes high demands of them which in

turn provides pride of workmanship or “joy in work” as Deming was to describe it. Drucker’s advice in these areas was to become a focus for Juran as well as Deming:

- “To focus on the minimum required is always to destroy people’s motivation. N To focus on the best that can be reached by constant effort and ability always builds motivation. This does not mean that one should drive people. On the contrary, one must let them drive themselves. But the only way to do this is to focus their vision on a high goal. Output standards for average workers are always, of necessity, minimum standards. They therefore invariably misdirect. They should not even be used as declared minimums with extra compensation for output above the standard, for the worker will still consider the standard as normal. Indeed, the good worker who can easily ‘beat the standard’ is likely to be affected adversely. He will either feel that he has to keep his output down so as not to ‘put on the spot’ his less competent fellow-workers; or he will lose respect for a management that does not know better than to set so absurdly low a standard. And whenever management attempts to raise the standard, he will be the first to complain that he is being driven.”
- “To motivate the worker to peak performance, it is equally important that management set and enforce on itself high standards for its own performance of those functions that determine the worker’s ability to perform.”
- “To measure work against objectives requires information. The question is not: How much information does the worker want?” It is: How much must he have to allow the enterprise to demand responsible performance of hem and when should he get it? The worker should be enabled to control, measure and guide his own performance. He should know how he is doing without being told. The rules for procedure and information that apply to managers should apply to workers as well.”
- “But the enterprise must also attempt to have the worker take responsibility for the consequences of his actions. He should know how his work relates to the work of the whole. He should know what he contributes to the enterprise and, through the enterprise, to society.”
- “Only by trying to get information to every worker can management hope to reach the small group that in every plant, office, or store leads public opinion and molds common attitudes.”
- “The worker will assume responsibility for perk performance only if he has a managerial vision, that is, if he sees the enterprise as if he were a manager responsible, through his performance, for its success and survival. This vision he can only attain through the experience of participation.”
- “We hear a great deal about ‘giving’ people pride in their work and a sense of importance or accomplishment. Pride and accomplishment cannot be given. People cannot be made to ‘feel’ important. Pride and accomplishment, further, cannot be created outside of the job

and work, but must grow out of them. People are proud if they have done something to be proud of – otherwise it is false pride and destructive. People will have a sense of accomplishment only if they have accomplished something. They feel important if their work is important. The only basis for genuine pride, accomplishment and importance is the active and responsible participation of people in the determination of their own work and in the government of their own plant community.”

- “To develop the effective alternative to fear as motivation of the worker will not be easy. But it has to be done. We have today the engineering knowledge to design individual and team jobs for peak performance. We have the social knowledge to organize men for effective work. In the new technology we have a system of production and distribution that will again give scope to the worker’s ability, drive and desire for accomplishment. Without the worker’s desire for performance these opportunities will not, however, become fruitful. That fear is gone is all to the good. But the absence of fear is not enough. We need positive motivations – placement, high standards of performance, information adequate for self-control, and the participation of the worker as a responsible citizen in the plant community.”
- “We know what we ought to do – at least we know that much more can be done than we are doing today. Certainly we have reason to expect – if not to demand – that, twenty years hence, what is now goal will have become accomplishment, what is now manifesto will have become history.”

Well, twenty years later these ideas were indeed making history – in Japan through the quality circle movement which served as the primary vehicle for implementation of these principles for motivation of workers. We will observe how this developed as the research trail unfolds. The final aspect of Drucker’s contribution to the design, development and implementation of a uniquely Japanese approach to motivation came through his ideas on how to increase involvement or participation in planning. Drucker created his idea of managing by objectives and results as a means to focus the organization on achieving a set of results by aligning the work of its people to a shared set of objectives. This changes the jobs of workers and managers relative to the ‘plan-do’ continuum. Instead of supervising employees in their work, the manager elicits agreement on objectives, measures and goals and leaves the employee to define the means by which they will accomplish these objectives. This is essential in order to gain managerial vision through participation in the process of planning direction and negotiation of the targets for standards of performance:

- “The best way to find waste is to look for it, and especially to ask: Where are we spending time, money, and people for not-doing and on producing non-results? There is only one sensible thing to do with waste-creating activities: drop them.”
- “Successful planning is always based on maximizing opportunities.”

- “First class people must always be allocated to major opportunities, to the areas of greatest possible return for each unit of effort. And first-class opportunities must always be staffed with people of superior ability and performance. IF there are no resources available for major opportunities one must build them. One never tries to exploit major opportunities with anything but high-grade resources. One never assigns high-grade resources to anything but major opportunities. And one does not create resources for secondary opportunities. Strength, to be effective, has to be concentrated. And any major opportunity is a challenge demanding undivided attention and dedication.”
- “But for full effectiveness all the work needs to be integrated into a unified *program for performance*.”
- “To make the right decision the knowledge worker must know what performance and results are needed. In turn, the knowledge worker must be ‘excited.’ He cannot be supervised. He must direct, manage, and motivate himself. And that he will not do unless he sees how his knowledge and work contribute to the whole business.”
- “For people who have to have knowledge and judgment, self-direction and the ‘excitement’ that motivates, the emphasis has to be on contribution and results.”
- “Economic results are not produced by economic forces; they are a human achievement.”
- “The man of knowledge in business – whether manager or individual professional contributor – has to impose on himself the executive’s three-fold commitment: (1) A commitment to make his knowledge and efforts *contribute* to the economic results. The knowledge worker’s focus has to be on contribution rather than the work, its skills and techniques. (2) A commitment to *concentrate*. Each knowledge worker, to be an executive, needs to take responsibility for allocating to opportunities and results the one resource truly under his control: himself. (3) A commitment finally, to the *systematic, purposeful, and organized* discharge of the economic tasks in his own job and work as well as in the total business.”

It is evident from this discussion that “knowledge workers” should participate in planning as well as doing. This means all workers with “specific knowledge” required for a business to excel and what must improve because without progress such knowledge will not remain relevant. Thus, a requirement for worker-based continuous improvement exists.

### **The Influence of Joseph M. Juran and W. Edwards Deming**

While Drucker set the theoretical stage, it was the more pragmatic acts of Deming and Juran who brought these ideas down to the gembu through their interpretation and Japanese acculturation by Ishikawa. Since Drucker’s ideas are echoed in the words of both Juran and Deming as they reflect on issues that are related to motivation and the responsibility of the

worker for quality, we must examine their ideas to understand the extent of his influence. We will begin with Juran, because he more clearly illustrates the influence of Drucker and a clearer explanation of this theme of the responsible worker is found: <sup>69,70</sup>

- “Planning should include participation not only by the advocates and by those who will be affected; the planning should also include third parties who can supply balance and objectivity.”
- “Treat people with dignity.”
- “The Taylor system is still very much with us. As a result, companies are failing to use a huge underemployed asset: the education, experience, and creativity of the workforce. Companies generally agree that the Taylor system is obsolete and should be replaced, but they don’t agree on what should replace it. There are many options, all of which have been undergoing test. The options include: creating conditions for worker self-control; creating the conditions for work self-inspection; job enlargement, both horizontal and vertical; and self-directed teams. Each option requires extensive transfer of work from supervisors and specialists to the workforce. As a result, each is meeting much cultural resistance.”
- “There has been too much talk about operator motivation as if it were the starting point in dealing with errors. In modern industry, the starting point is not operator motivation but rather the concept of self-control. Under this concept, we set up a job so as to make the job holder self-sufficient. We provide him with the means needed to carry out his assigned job, and then we hold him responsible for getting results. We have been rather clear about insisting that the job holder produce results, but we have been less than clear about defining the ‘means needed’ to carry out the job, that is, the *criteria for self control*.”
- “In my experience, taking industry as a whole, only about 20 percent of our defects are employee-controllable. The remaining 80% are caused by failure of the company to provide the employee with all three of the indispensable means for ‘self-control:’ (1) Means for knowing just what it is he is supposed to do. (2) Means for knowing just what it is he is actually doing. (3) Means for closing the loop, that is how to change what he is doing in order to conform to what he is supposed to be doing.”
- “These essentials must all be provided, by management, before an employee can do a good job. (Once they have been provided, motivation enters in to decide whether he or she *will* do a good job.) If any one of these indispensables has not been provided by the company, the defects resulting from such omission must be regarded as management-controllable.”
- “If we have provided every one of these essentials, the resulting errors should be classified as operator-controllable, and it then becomes timely to talk about motivation.”

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<sup>69</sup> Joseph M. Juran, *Managerial Breakthrough* (New York: McGraw-Hill, 1964).

<sup>70</sup> Kenneth S. Stephens, editor, *Juran, Quality, and a Century of Improvement*, Volume 15, International Academy for Quality, The Best on Quality, (Milwaukee, WI: ASQ Quality Press, 2005).

- “What is astonishing is the degree to which the Japanese have succeeded in harnessing the energy, ingenuity and enthusiasm of the workforce to the unsolved problems of the company.”
- “The priority of industrial motivation incentives in the Japanese culture is quite different from that prevailing in the West ... here is the order of importance: (1) Improving the company’s performance, (2) Self-Improvement, and (3) Recognition.”

In 1966 Juran recognized the importance of the newly developed QC-Circle which had been first promoted by Kaoru Ishikawa in 1962 for self-management of quality improvement activities:<sup>71</sup>

- “The QC-Circle movement has enlarged the social circle of the worker, who previously had not participated in social recognition. Opportunities now exist for workers to get out to conferences, to visit other companies and even to become a member of a team to go abroad to study foreign practice.”
- “Matsushita has recently conducted a morale survey among QC-Circle members. All workers mentioned the benefit of learning through the studies. In addition, they pointed out the following advantages: (1) By attending the QC-Circle meetings, they acquired the ability to speak in public; (2) They made more friends, and this contributed to more cheerful atmosphere in the workshop; (3) They became more conscious of the importance of their jobs and their responsibility, and through the awareness of this importance, now have more pride in their jobs; and (4) They improved their personality and acquired the ability to concentrate on solution of problems. These experiences with the QC-Circle they apply in their home life.”
- “Of the utmost importance is the fact that, through the QC-Circles, the Japanese have made a clean break with a tired, outworn theory that plagues the West. This is the theory that the company’s quality troubles are due to operator indifference, blunder, and even sabotage. Under this theory, the operators could solve the company’s quality problems if only the right motivational lever could be found and thrown.”
- “The QC-Circle concept starts with a different set of beliefs: (1) We don’t really know the cause of our quality troubles; we don’t even know which are the main troubles; (2) We must teach people *how* to analyze the trouble pattern to identify the main troubles; (3) We must teach people how to list the suspected causes of the main troubles, and how to discover which are the real root causes; (4) We must help people to secure remedies for these real root causes; and (5) We must teach people how to hold the gains through modern control.”

In much of Deming’s writings he reacts against the management practice of paying workers for

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<sup>71</sup> Ikuro Kusaba, “Recent Activities of QC-Circles in Japan,” in Herman J. Zeller, editor, *International Academy for Quality Best on Quality*, Volume 4 (New York: Hanser Publishers, 1991).

piece work – the practice of providing compensation for each item produced, which sometimes also results in deductions of items that do not meet the quality standards. Deming believed that such practice destroyed the pride of workmanship of the worker and he encouraged the elimination of such practices in order to restore the ‘joy’ of work (perhaps what Drucker referred to as the ‘excitement’). While Deming did not directly echo Drucker’s concept of the responsible worker, Deming applied the concept in developing his ideas for the transformation that is required in management to achieve quality and productivity. He expressed his ideas this way:<sup>72,73</sup>

- “Eliminate numerical quotas for the work force.”
- “Rates for production are often set to accommodate the average worker. Naturally, half of them are above average, and half below. What happens is that peer pressure holds the upper half to the rate, no more. The people below the average cannot make the rate. The result is loss, chaos, dissatisfaction, and turnover. Some rates are set for the achiever, which is even worse. A quota is a fortress against improvement of quality and productivity. I have yet to see a quota that includes any trace of a system by which to help anyone to do a better job. A quota is totally incompatible with never-ending improvement.”
- “The intent of application of a work standard is noble: predict costs; establish a ceiling on costs. The actual effect is to double the cost of the operation and to stifle pride of workmanship.”
- “One will see any day in hundreds of factories, men and women standing around the last hour or two of the day, waiting for the whistle to blow. They have completed their quotas for the day; they may do no more work, and they cannot go home. Is this good for the competitive position of American industry? These people are unhappy doing nothing. They would rather work.”
- “The job of management is to replace work standards by knowledgeable and intelligent leadership. Whenever work standards have been thrown out and replaced by leadership, quality and productivity have gone up substantially, and people are happier on the job.”
- “To manage, one must lead. To lead one must understand the work that he and his people are responsible for.”
- “Remove barriers that rob people of pride of workmanship.”
- “Barriers against pride of workmanship may in fact be one of the most important obstacles to reduction of cost and improvement of quality in the United States.”

Deming observed that restoring pride of workmanship is impossible without assuring an ability to hold workers responsible for quality in an appropriate way:

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<sup>72</sup> W. Edwards Deming, *Out of the Crisis* (Cambridge, MA: MIT Press, 1986).

<sup>73</sup> W. Edwards, Deming, *The New Economics* (Cambridge, MA: MIT Press, 1992).

- “Drive out fear. No one can put in his best performance unless he feels secure. *Se* comes from the Latin, meaning without, *cure* means fear or care. Secure means without fear, not afraid to express ideas, not afraid to ask questions. Fear takes on many faces. A common denominator of fear in any form, anywhere, is loss from impaired performance.”
- “In my experience, people can face almost any problem except the problems of people. They can work long hours, face declining business, face loss of jobs, but not the problems of people. Faced with problems of people, management, in my experience goes into a state of paralysis, taking refuge in formation of QC-Circles and groups for employee involvement, employee participation and quality of work life. These groups predictably disintegrate within a few months from frustration, finding themselves unwilling parties to a cruel hoax, unable to accomplish anything, for the simple reason that no one in management will take action on suggestions for improvement. These are devastatingly cruel devices to get rid of the problems of people. There are of course exceptions, where the management understands their responsibilities, where management participates with advice and action on suggestions for removal of barriers to pride of workmanship. The possibility of pride of workmanship means more to the production worker than gymnasiums, tennis courts, and recreation areas. Give the work force a chance to work with pride, and the three percent that apparently don’t care will erode itself by peer pressure.”

Deming believed that teamwork is essential for quality improvement:

- “Everyone can take part in a team. The aim of the team is to improve the input and output of any stage [in their process]. A team may well be composed of people from different staff areas. Everyone on a team has a chance to contribute ideas, plans, and figures; but anyone may expect to find some of his best ideas submerged by consensus of the team. He may have a chance on the later time around the cycle [referring to the application of what he has called the Shewhart Cycle and is also referred to as the Deming Cycle or the Plan-Do-Check-Act (PDCA) cycle for continuous improvement]. A good team has a social memory. A group, a team, should have an aim, a job, a goal. Statement thereof must not be specific in detail, else it stifle initiative. By working in this way, everyone will see what he can do and what only top management can do.”
- “It is hazard to copy. It is necessary to understand the theory of what one wishes to do or to make. Americans are great copiers (QC-Circles, *kanban*, or just-in-time, for example). The fact is that the Japanese learn the theory of what they wish to make, then improve on it. QC-Circles contribute vitally to industry in Japan.”
- “It should be well understood that a QC-Circle is not a cure-all. Defects are caused not only by faulty operation of workers, but also usually more seriously and frequently by poor design, poor specifications, poor education and training, poor arrangement and

maintenance of machines, and so on. These are all problems of management, which a QC-Circle cannot solve.”

- “A QC-Circle can thrive only if the management will take action on the recommendations of the Circle.”

Deming structured his recommendation of the method for improvement:

- “Institute education in leadership; obligations, principles, and methods. More careful selection of the people in the first place. Better training and education after selection. A leader, instead of being a judge, will be a colleague, counseling and leading his people on a day-to-day basis, learning from them and with them. Everybody must be on a team to work for improvement of quality in the four steps of the Shewhart cycle.”

However, Deming also observed that individual performance ratings or appraisals can destroy the ability to manage a team effectively:

- “Evaluation of performance explains, I believe, why it is difficult for staff areas to work together for the good of the company. They work instead as prima donnas, to the defeat of the company. Good performance on a team helps the company but leads to less tangible results to count for the individual. The problem on a team is: who did what? Thus, teamwork, so highly desirable, cannot thrive under the annual rating.”
- “One gets a good rating for fighting a fire. The result is visible; can be quantified. If you do it right the first time, you are invisible. You satisfied the requirements. That is your job. Mess it up, and correct it later, you become a hero. The result is every man for himself.”
- “We must work to achieve a higher degree of harmony and order in our world; to relieve the strain of modern living by simplification; to increase the standard of living through more efficient production of interchangeable parts in a free market. We must use standards as ‘the liberator that relegates the problems that have already been solved to the field of routine and leaves the creative faculties free for the problems that are still unsolved.’”

In his book *The New Economics*, Deming defined the four elements what he called his theory of profound knowledge; appreciation of a system, knowledge of variation, theory of knowledge, and psychology. Proper application of psychology should achieve “joy in work” for the worker. Deming believed “people are a part of the system; they need help.” For him, the persistent lack of systems understanding by management is a critical deficiency. How to help these people? At the beginning of his book *Out of the Crisis*, Deming observed: “Quality to the production worker means that his performance satisfies him, provides him pride of workmanship.” Thus, it is the job of management to create the circumstance where workers have proper motivation that will result in the restoration of their joy in work.

- “One is born with intrinsic motivation, self-esteem, dignity, cooperation, curiosity, joy in

learning. These attributes are high at the beginning of life but are gradually crushed by the forces of destruction.

- “[Extrinsic motivators] lead anyone to play to win, not for fun. They crush joy in learning, joy on the job, innovation. Extrinsic motivation gradually replaces intrinsic motivation, self-esteem, and dignity.”
- “In place of judgment of people, ranking them, putting them into slots (outstanding, excellent, on down to unsatisfactory), the aim should be to help people to optimize the system so that everybody will gain.”

Deming focused on defining the new role of a manager of people in a system:

- “A manager understands and conveys to his people the meaning of a system. He explains the aims of the system. He teaches his people to understand how the work of the group supports them.”
- “He helps his people to see themselves as components in the system, to work in cooperation with preceding stages and with the following stages toward optimization of all stages toward achievement of the aim.”
- “A manager of people understands that people are different from each other. He tries to create for everybody interest and challenge, and joy in work. He tries to optimize the family background, education, skills, hopes, and abilities of everyone. This is not ranking people. It is instead, recognition of differences between people, and an attempt to put everybody in position for development.”
- “He is an unceasing learner. He encourages his people to study. He provides, when possible and feasible, seminars and courses for advancement of learning. He encourages continued education in college or university for people that are so inclined.”
- “He is a coach and a counsel, not a judge.”
- “He understands a stable system. He understands the interaction between people and the circumstances that they work in. He understands that the performance of anyone that can learn a skill will come to a stable state – upon which further lessons will not bring improvement of performance. A manager of people knows that in this stable state it is distracting to tell the worker about a mistake.”
- “He has three sources of power: (1) Authority of office; (2) knowledge; (3) Personality and persuasive power; tact. A successful manager of people develops the second and third; he does not rely on the first. He has nevertheless obligations to use the first, as this source of power enables him to change the process – equipment, materials, methods – to bring improvement, such as reduction variation to output. He in authority, but lacking knowledge or personality (second or third), must depend on his formal power. He unconsciously fills a void in his qualifications by making it clear to everybody that he is in position of authority. His will be done.”

- “He will study results with the aim to improve his performance as a manager of people.”
- “He will try to discover who if anybody is outside the system [statistically speaking, whose performance represents a special cause of variation], in need of special help. This can be accomplished with simple calculations, if there be individual figures on production or on failures. Special help may be only simple rearrangement of work. It might be more complicated. He in need of special help is not in the bottom 5 percent of the distribution of others; he is clean outside that distribution.”
- “He creates trust. He creates an environment that encourages freedom and innovation.”
- “He does not expect perfection.”
- “He listens and learns without passing judgment on him that he listens to.”
- “He will hold an informal, unhurried conversation with everyone of his people at least once a year, not for judgment, merely to listen. The purpose would be development of understanding of his people, their aims, hopes, and fears. The meeting will be spontaneous, not planned ahead.”
- “He understands the benefits of cooperation and the losses from competition between people and between groups.”

In summary, Deming observed that “joy on the job comes not so much from the results, the product, but from contribution to optimization of the system in which everybody wins.”

In the mid-1950's there were no greater influences on the development of Japanese thinking than Deming, Juran and Drucker. All three lectured in Japan during this time (although most people are unaware that Drucker also visited Japan to discuss management in the mid-1950s). The Japanese way is to study what has been influential and effective and then to seek out the common denominator or general principles that apply across societies and cultures. So, we will examine how these ideas of worker motivation and responsibility for quality were developed through the association of Drucker, Deming and Juran, became agreed in the mid-1950s, and have influenced development of a theory and practice of motivation of Japanese workers.

### **Kaoru Ishikawa: Leader of the Japanese Quality Movement**

Although many think of Ishikawa as a technologist due to his doctorate in chemical engineering, he was in reality a practical humanist in his views. “In management, the first concern of the company is the happiness of the people connected with it. If the people do not feel happy and cannot be made happy, that company does not deserve to exist.”<sup>74</sup> In fact, it is this perspective that is celebrated by the medal that was named in his honor by ASQ and that he is perhaps best

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<sup>74</sup> Ishikawa, *What is Total Quality Control? The Japanese Way* (Englewood Cliffs, NJ: Prentice-Hall, 1985).

remembered as the “Father of Quality Circles” – a team-based approach to investigating and obtaining consensus on workplace improvement. In his system of TQM, Ishikawa had just six principles that were fundamental in his teaching and, taken collectively they form the Japanese quality paradigm:<sup>75</sup>

- All employees should clearly understand the objectives and business reasons behind for promotion and application of the methods of and promotion of companywide quality control.
- The features of the quality system should be clarified at all levels of the company and communicated in such a way that the people have confidence in these features.
- The continuous improvement cycle should be continuously applied throughout the whole company for at least three to five years to develop standardized work. Both statistical quality control and process analysis should be used, and upstream control for suppliers should be developed and effectively applied.
- The company should define a long-term quality plan and carry it out systematically.
- The walls between departments or functions should be broken down, and cross functional management should be applied.
- Everyone should act with confidence, believing his or her work will bear fruit.

These maxims are Ishikawa’s answer to the problem posed by Ohno regarding pervasiveness of mistakes in the “*gemba*” and the challenge offered by Matsushita to pursue the “*sunao* mind.” The influence of the participatory management school of psychology is clear in this operating philosophy. Ishikawa is an eclectic who has blended many ideas together to formulate a way of working that will operate in the culture of the Japanese workplace. In 2004, the author wrote an article about Ishikawa in which he observed that Ishikawa was the “prime mover of quality in Japan.”<sup>76</sup> “According to Ishikawa management should let employees self-regulate their own work and steer them in the direction where their efforts will make the most impact. Management should also illuminate the areas where its employees are weak and encourage teams to pursue excellence in their tasks.” While Ishikawa called for “quality first” as the basic principle in any organization’s operating philosophy, he also realized that “quality begins and ends with education.” Quality does not come naturally, but workers must be trained and daily involved in quality improvement activities in order to reinforce the lessons from education. All work should include self-inspection, followed by corrective action or preventive actions that are targeted at uncovering and resolving problems before they affect the customer. To accomplish this, frontline workers in the *gemba* must collaborate on the relentless pursuit of perfection –

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<sup>75</sup> This list is paraphrased from a synopsis of Ishikawa’s ideas by Yoshio Kondo, “Bibliographical Overview of Dr. Kaoru Ishikawa,” Kenneth S. Stephens, editor, *International Academy for Quality: Best on Quality*, Vol. 13 (ASQ Quality Press, 2002).

<sup>76</sup> Gregory H. Watson, “The Legacy of Ishikawa,” *Quality Progress*, April 2004, 54-57.

or elimination of mistakes from the workplace so that quality delivered to customers is quality as designed by the engineers. Ishikawa's ideas were driven into Japanese society through JUSE and the disciplines that he trained and have provided two additional "generations" of quality thought leaders: Yoshio Kondo; Noriaki Kano and Hitoshi Kume; as well as Yoshinori Iizuka and Hiroshi Osada. Ishikawa believed in succession planning and planting his ideas into following generations of quality leaders who would continue the nation's relentless pursuit of excellence.

A final observation is required before leaving this discussion of Kaoru Ishikawa. Over the course of many discussions with Dr. Noriaki Kano, one of the two principal disciples of Ishikawa (the other is Dr. Hitoshe Kume), the role that Ishikawa played in directing development of the Japanese quality movement became clear. Ishikawa believed that Western ideas must infiltrate Japan as part of its modernization efforts after World War II, but that these ideas must become part of the Japanese culture. Even the title of Ishikawa's principal book, ***What is Total Quality Control? The Japanese Way***, illustrates his emphasis on incorporating the idea of Dr. Armand V. ("Val") Feigenbaum into a unique Japanese expression.<sup>77</sup> Thus, Ishikawa was the prime mover in the establishment of translation requirements and study groups to understand how to capture these ideas and transform them into an evolving quality system that would align with the Japanese culture. This observation will set the stage for discussion of the translation efforts of the 1950s-1960s as well as the Japanese Research Committee's of the 1970s-1980s.<sup>78</sup>

### **Influence of Shigeo Shingo and the Toyota Production System**

Another Japanese thought leader who has made a prominent contribution to the development of operational philosophy related to workplace management is Shigeo Shingo (1909-1990). It must be remembered that while Shingo was an industrial engineer who taught classes in IE at

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<sup>77</sup> The early thinking of Dr. Armand V. Feigenbaum can be traced through the migration of his writing in the first 15 years of his career: "Quality Control as a Management Method," American Institute of Electrical Engineers, 1946 ; *Quality Control: Principles, Practices and Administration* (New York: McGraw-Hill, 1951); "Total Quality Control," *Harvard Business Review*, 1956, 93-100; "Total Quality Control," *Industrial Quality Control*, May 1957; *Total Quality Control: Engineering and Management* (New York: McGraw-Hill, 1961).

<sup>78</sup> Another Japanese writer has also penetrated the popular Western literature on quality: Masaaki Imai in ***Kaizen: The Key to Japanese Competitive Success*** (New York: McGraw-Hill, 1986) and ***Gemba Kaizen: A Common-Sense, Low Cost Approach to Management*** (New York: McGraw-Hill, 1997). Although Imai's books have described the Japanese system of quality very well, he has not been completely accepted within his own country (e.g., he is not a recipient of the JUSE Individual Deming Prize). This may seem strange to Westerners, but Japanese quality leaders do not credit him with having produced an original contribution to their body of quality knowledge and think of him more as a reporter who is providing detailed journalistic coverage about the work of others. While this may be debated, his exclusion here is purposeful in that it is the chain of thinking that directed the development of the Japanese approach to workers that is significant for the purpose of this present research.

Toyota since 1955, he was a contributor to development of methods for the Toyota Production System, but he was not its true creator. However, it was Shingo whom Ohno asked to develop the fast changeover methods for machining which have become known as the Single Minute Exchange of Die (SMED) and illustrate the collaboration in workplace management that comes from an orchestration of the activities of a small team to accomplish a common objective in the minimal cycle time – the hallmark metric of the Toyota Production System (TPS). In addition to SMED as a work management process, Shingo was also responsible for developing the concepts of Zero Quality Control (ZQC) and *poka-yoke* (mistake-proofing) which are also associated with TPS. ZQC is a system to detect mistakes before they become errors and to detect errors before they become defects. ZQC has three components: targeting zero defects at the point of work, holding workers accountable for the quality of their work, inspection of work quality at the source, and a *poka-yoke* system of mistake-proofing work to eliminate inadvertent defects. It is this combination of methods that could be applied by QC-Circles as a means to drive work process improvement. Shingo was a pragmatist about his approach to quality improvement by the method of *poka-yoke* as applied in the workplace. <sup>79, 80, 81, 82, 83, 84</sup>

While Shingo created the concept of mistake-proofing, Hiroyuki Hirano helped to make it more accessible through his book of case studies. <sup>85</sup> One significant contribution of Hirano's book is the insight into the distinction that is drawn in Japanese thinking between mistakes, errors, and defects. Mistakes occur within the person (as Ohno proclaimed everyone makes mistakes at least 30% of the time, and problem-solving and consensus is required to remove the illusions that lead to the inadvertent mistake (inadvertent because nobody intends to make a mistake on purpose)). Errors occur when the work leaves the oversight of the worker and it affects a second worker within the process thereby causing a loss in the pattern of work and creating unnecessary motion (waste). Defects occur when the error is passed outside the process and have an impact on the entire system (perhaps all the way to the customer). Hirano provided some detailed insight into the result of mistakes which may be classified as the ten common causes of errors: forgetfulness, errors due to misunderstanding, errors in identification, errors

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<sup>79</sup> Shigeo Shingo, *A Revolution in Manufacturing: The SMED System* (Cambridge, MA: Productivity Press, 1985).

<sup>80</sup> Shigeo Shingo, *Zero Quality Control: Source Inspection and the Poka-Yoke System* (Cambridge, MA: Productivity Press, 1986).

<sup>81</sup> Shigeo Shingo, *Key Strategies for Plant Improvement* (Cambridge, MA: Productivity Press, 1987).

<sup>82</sup> Shigeo Shingo, *Non-Stock Production: The Shingo System for Continuous Improvement* (Cambridge, MA: Productivity Press, 1988).

<sup>83</sup> Shigeo Shingo, *A Study of the Toyota Production System* (Cambridge, MA: Productivity Press, 1989).

<sup>84</sup> Shigeo Shingo, *The Shingo Production Management System: Improving Process Functions* (Cambridge, MA: Productivity Press, 1992).

<sup>85</sup> Hiroyuki Hirano, *Poka-Yoke: Improving Product Quality by Preventing Defects* (Cambridge, MA: Productivity Press, 1988).

made by amateurs, willful errors, inadvertent errors, errors due to slowness, errors due to lack of standards, surprise errors, and intentional errors. Hirano also identified the most common sources of defects: omitted processing, processing errors, errors setting up workpieces, missing parts, wrong parts, processing wrong workpiece, mis-operation, adjustment error, equipment not set up properly, and tools and jigs improperly repaired.

Hirano developed a table to explain the between sources of human errors and defect types: <sup>86</sup>

Category of Error / Category of Defect	Intentional	Misunderstanding	Forgetful	Misidentification	Amateurs	Willful	Inadvertent	Slowness	Non-supervision	Surprise
Omitted Processing	⊙	○	⊙	○	○	○	⊙	○	○	
Processing Errors	⊙	⊙	○	○	⊙	⊙	⊙	⊙	⊙	
Errors Setting up Workpieces	○	○	⊙	○	○		⊙	○	○	
Missing Parts	⊙	○	○		○	○	⊙		○	
Wrong Parts	⊙	⊙	⊙	⊙	⊙	⊙	⊙		⊙	
Processing Wrong Workpiece	○	⊙	⊙	○	○	⊙	⊙		○	
Misoperation			○				○		○	⊙
Adjustment Error	○	○	○	⊙	○	⊙	○	○	○	○
Improper Equipment Set-up			○				⊙			⊙
Improper Tools / Jigs			○				⊙			○

Key to symbols used in this table: Strongly Connected = ⊙ Connected = ○

Shingo also made observations about how Japanese supervisors had approached work:

<sup>86</sup> Modified from Hirano, *Ibid.*, p. 14.

- “Whenever I hear supervisors warning workers to pay more attention or to be sure not to forget anything, I cannot help thinking that the workers are being asked to carry out operations as if they possessed divine infallibility. Rather than that approach, we should recognize that people are, after all, only human and as such they will, on rare occasions, inadvertently forget things. It is much more effective to incorporate a checklist – i.e., a *poka-yoke* – into the operation so that if a worker forgets something, the device will signal that fact, thereby preventing defects from occurring. This, I think, is the quickest road leading to the attainment of zero defects. In terms of management functions, this sort of *poka-yoke* device fulfills a control function leading to attainment of zero defects.”
- “I gave the name *poka-yoke* (mistake-proofing) to these devices because they serve to prevent (or ‘proof,’ in Japanese *yoke*) the sort of inadvertent mistakes (*poka* in Japanese) that anyone can make.”
- “Emboldened by the results of successive check systems, I realized that a *self-check system* would allow even faster corrective action to take place. Self-checking, though was said to be flawed by workers’ tendencies to make compromises and inadvertently overlook problems. It dawned on me that, in cases where *poka-yoke* devices could be used, a self-check system was even better than a successive check system. With this in mind, I actively developed *poka-yoke* devices and worked to expand the use of successive check systems. In instances where it where it was technically or economically unfeasible to apply *poka-yoke* methods to self-check systems, we tried hard to incorporate *poka-yoke* functions into successive check systems.”

By combining these elements of ZQC Shingo created a self-regulating management system that allowed workers to be held accountable for the quality of their work.

Another significant concept in the Toyota culture is the responsibility of workers to apply the rule ‘*genchi genbutsu*’ or ‘go and see for yourself.’ *Genchi genbutsu* helps resolve problems by “going to the *gemba*” – to solve a problem by observing the problem right in front of you. The *Genchi genbutsu* method differs from a “remote problem analysis” by forcing confrontation with the problem situation through individual and team involvement in the problem. In other words, the employee on the assembly line floor who finds the problem will have a team join him to analyze the data rather than send it to a different employee (or corporate staff) who will remotely analyze the data and try to find a solution without ever having seen the problem at hand. Toyota believes that the best way to solve a problem is to have all of the information needed to solve the problem in a single location. *Genchi genbutsu* requires gathering relevant facts to gain a full understanding of a problem situation and its symptoms. When the team completes its study, then consensus between members must occur to assure that the solution

meets the objectives of the team.<sup>87</sup>

### Translations of Western Literature into Japanese in the Decades of the 1950s and 1960s

While preparing a bibliography for another research paper, I discovered an interesting set of notes in a book edited by Japanese quality specialist Yoji Akao.<sup>88</sup> It occurred to me that this identified part of an explicit Japanese research practice based upon an underlying strategy to develop a uniquely Japanese body of quality knowledge. From this observation, I conclude that Japanese quality management, at its roots, was greatly influenced by American “humanistic psychology” in its approach to defining work and establishing methods for work process improvement. In fact, this emphasis is quite evident when one analyzes the English language texts that were chosen for translation by Japanese business involved in the development of Total Quality Management (TQM) from the mid-1950s through 1970:

- Peter F. Drucker, *The Practice of Management* (1957)
- Abraham Maslow, *A Theory of Human Motivation* (1960)<sup>\*1 \*2</sup>
- Douglas McGregor, *The Human Side of Management* (1960)<sup>\*1 \*2</sup>
- Edward C. Schleh, *Management by Results* (1963)
- Abraham Maslow, *Toward a Psychology of Being* (1964)<sup>\*1</sup>
- Armand V. Feigenbaum, *Total Quality Control* (1964)
- Rensis Likert, *New Patterns of Management* (1964)<sup>\*1</sup>
- Peter F. Drucker, *Managing for Results* (1967)
- Frederick I. Herzberg, *The Motivation to Work* (1969)<sup>\*1 \*2</sup>

<sup>\*1</sup> Note: These psychology texts were translated into Japanese and available for reference.

<sup>\*2</sup> Note: These texts were referenced as the conceptual basis for Japan’s motivation theory.

Different Japanese companies ‘sponsored’ these translations and upon their completion, they were studied by the leaders of the Japanese quality movement and these texts were included as part of the research conducted by many of their university students.

### Japanese Research Committee Efforts to Understand these Translations

Evidence in studying the available research committee reports suggests that the Japanese had a thirty-year-long guided research program to develop quality focused industrial engineering as a core national competence. The work of the Japanese Research Committees began in the early

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<sup>87</sup> Jeffrey Liker, *The Toyota Way: 14 Management Principles from the World’s Greatest Manufacturer* (New York: McGraw-Hill, 2003).

<sup>88</sup> Akao, Yoji, editor, *Hoshin Kanri: Policy Deployment for Successful TQM* (New York: Productivity Press, 1991).

days of the initial quality technology transfer in inviting Dr. W. Edwards Deming, an original ASQ course instructor, to Japan, JUSE recognized that it needed external educational competence in order to teach this program. JUSE and other professional organizations related to quality then became the sponsors of a series of research projects that are shown in the table below. This is not a complete description of these research committees which should also include a listing of the participating companies as well as the relationship of the individuals to different Japanese organizations (perhaps this will be the subject of a subsequent research paper).

Research Committee Information	Human Motivation	Cross-Functional Management	Hoshin Kanri	Quality Function Deployment	Problem Solving
Chairman	Yoshio Kondo JSA	Kenji Kurogane JSA	Yoji Akao JSA	Yoji Akao JSQC, JSA	Katsuya Hosotani JUSE
Members	Academia: 2 Industry: 7	Academia: 2 Industry: 8	Academia: 3 Industry: 5	Academia: 3 Industry: 9	Academia: 3 Industry: 7
Starting Date	1984	1984	1984	1978	1984
Ending Date	1988	1988	1988	1988	1985
Major Findings	New Japanese theory of human motivation	Standard way to manage cross-functional groups	Standardized approach to use of hoshin kanri for TQM	Develop voice of customer & house of quality matrices	Fourteen step process for TQC problem-solving
English Printing	3A Corporation Press, 1991	Productivity Press, 1992	Productivity Press, 1991	Productivity Press, 1990	Productivity Press, 1991

These Japanese Research Committees developed the core of Japanese quality thinking which was then transitioned back to America through the translation activities of Productivity Press and the GOAL/QPC Research Committee. Each of these committees followed the same formula (which may have been copied from the American approach to developing the WWII course on statistical quality control. The common principles for managing each research team was as follows: (1) participation in the team was a combined academia-industry partnership where the academics were responsible for developing the theoretical or systematic approach and the industry participants developed case studies to demonstrate how to apply the methods in a variety of industrial uses; (2) methods used by these committees was consistent: participative management, action learning, management by fact, and workplace experimentation; and (3) project management logistics is provided for long-term continuity, through the participation and sponsorship of a professional organization (JUSE, Japanese Society for Quality Control (JSQC), Japanese Statistics Association (JSA), Japanese Management Association (JMA), etc.).

### Japanese Standards Association (JSA) Human Motivation Research Group

One of the seven Japanese Research Committees focused on the subject of human motivation

and its academic leader was Yoshio Kondo of Kyoto University. Industry participants in the JSA Human Motivation Research Group included 7 participants from 6 companies: Nippon Paint Company, Sumitomo Heavy Industries, Japan Inspection Company, Sumitomo Jukikai Environment, Amada Wasino Company and Dai-ichi High Frequency Company. It is noteworthy that in the foreword to the book, Eizaburo Nishibori talks about a visit by a friend of his (Taiichi Ohno) who made a visit to America to observe Company N (which was North American Tool & Die (NATD)) which he cites for its productivity, quality and cooperative work environment. From this observation it is his belief that the principles of motivation are not restricted to Japan, but are universal. At the end of this section a comment about this specific case study will be made, based on both personal observation and the president's book that describes the NATD way of working. In addition to editing the book that reported the findings of this Research Group, Kondo also published two articles in English on motivation in the Best on Quality series of the International Academy for Quality. The first of these papers immediately followed the book release and summarizes the academic theory part of the study. The third paper is actually intended as an extension of Kondo's theory, but does not present a verified or validated model and has had no effect or impact on the Japanese quality movement. Thus, the theoretical basis for our discussion will be the published report of the JSA Motivation Research Group.<sup>89,90,91</sup>

### Structure of the Motivation Research Group

The Motivation Research group was established in 1974 under the direction of Dr. Yoshio Kondo and at the instigation of Dr. Eizaburo Nishibori (1903-1989).<sup>92</sup> Nishibori is not well known in the Western world, but he is an interesting individual. He was the Executive Director of the Japan Atomic Energy Research Institute, an electrical engineer and inventor who was also an arctic explorer. Nishibori led the Japanese Arctic Research Expedition during its 1958 wintering-over in Antarctica. Nishibori's interest in motivation was practical as he applied his spirit in the style of management he used. While talking to the person in charge of the expedition's generators, Nishibori reportedly quipped, "Your job is to produce electricity. I'll leave the method up to you. I don't care if you use ninja techniques." Nishibori gave his team a clear goal while leaving design of its implementation to their imagination. When he did that,

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<sup>89</sup> Yoshio Kondo, editor, *Human Motivation: A Key Factor for Management* (Tokyo: 3A Corporation, 1989).

<sup>90</sup> Yoshio Kondo, "Quality Motivation in Japan," in Herman J. Zeller, editor, *International Academy for Quality Best on Quality*, Volume 2 (New York: Hanser Publications, 1991).

<sup>91</sup> Yoshio Kondo and Su Mi Park Dahlgaard, "Reconceptualization of Human Needs and Motivation for Quality," in Madhav Sinha, editor, *International Academy for Quality Best on Quality*, Volume 11 (Milwaukee, WI: ASQ Quality Press, 2000).

<sup>92</sup> Eziaburo Nishibori, *Humanity and Development of Creativity* (Tokyo: Japan Productivity Center, 1971) (in Japanese)).

the specialists took pride in their work and delivered the desired results.<sup>93,94</sup> Nishibori was a recipient of the JUSE Deming Prize for Individuals in 1954 – in the fourth year of the award. This indicates that Nishibori had a significant role in the founding years of the Japanese quality movement.

A Human Motivation Study Course that was delivered by the Japanese Standards Association based on the design work of the JSA Motivation Research Group. The course design had three dominant influencing factors: the pioneering spirit and philosophy of Nishibori, Kondo's logical approach and structure of the problem and the practical experience of the Motivation Research Group's member companies. The expression of the spirit of Nishibori in his Arctic expedition precedes the translation of Western psychology texts into Japanese so it is understandable that the Research Group venerated his contribution. However, the second ingredient or the "logic of Kondo" clearly was influenced by the Western psychologist's thinking, as well as by the ideas of Deming and Juran, and the influence of Japanese management thinking from Matsushita and Ohno. This is especially true as Kondo was seeking a universal explanation of motivation as in the period of the Motivation Research Group's work (1974-1977) Japan was confronting a need to expand internationally as its industrial influence was beginning to affect the world economy and Japan was emerging as global economic leader. Thus, the remainder of this paper will focus on the findings of the Japanese Motivation Research Committee and the influence of the Western psychologists.

### **Influences Driving Japanese Motivation Theory**

As a starting point, it should be noted that perhaps Juran had a larger influence on the Japanese development of motivation theory than he is credited with. We must remember that in Juran's work at Western Electric, he was assigned to Harvard Professor George Elton Mayo (1880-1949) and assisted in conducting the psychological studies of work factors that influence productivity

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<sup>93</sup> Tetsuro Matsuzawa and William C. McGrew, "Kinji Imanishi and 60 Years of Japanese Primatology, *Current Biology*, Vol. 18, No. 14, pp. 590-591.

<sup>94</sup> In 1925 Nishibori was a student at Kyoto Imperial University along with Kinji Imanishi (1902-1992) and Takeo Kuwabara (1904-1988). Nishibori was Imanishi's brother-in-law (married to Imanishi's sister). He later became a multi-talented scholar, inventing innovative electric components, creating the first nuclear-powered ship in Japan, and a pioneer in Japanese quality. Kuwabara introduced French literature to Japan and became a leading opinion-maker of his time. Imanishi became one of the world's leading primatologists. All three became intellectual leaders in Japan and they all enjoyed mountain climbing. In 1931 they founded the Academic Alpine Club of Kyoto (AACK), in order to send an expedition to the Himalayan peaks over 8,000 m. At that time, no one had succeeded in climbing all 14 peaks of more than 8,000 m height. In 1955 Imanishi led a Japanese team to explore the unexplored wide range of Karakorum Himalayas, traversing the three major glaciers. In 1958 Nishibori led an all-Japanese team in the first winter-long stay in Antarctica. In 1922 when Albert Einstein was invited to speak at the Kyoto Imperial University, Nishibori was given the role of his tour guide for three days. This hosting experience seems to have influenced all three young men. Interestingly, Dr. Yoshio Kondo became a member of AACK.

at the Hawthorne works near Chicago during 1927-1932. This experience was a watershed for motivation theory development and Juran was there to observe it first-hand. Remember that prior to this study traditional work design prevailed: processes are divided into production operations which are standardized, simplified, and automated as much as possible. Individuals doing the work were given little information or power and decisions were reserved for senior managers who closely monitor the employees to prevent deviation from the work standard. The people were de-humanized and treated like they were machines and their only job was to follow the controlling commands of management. Thus, workers concluded that their ideas did not matter and they had no motivation to do creative work. This system of work was marked by inflexibility, inefficiency, low involvement as evidenced by high employee absenteeism and turnover, and lack of coordination and accountability for the quality of work. Mayo's work was to highlight that there is a group dynamic which can increase productivity. Indeed, many of the industrial psychologists made observations like Rensis Likert (1903-1981), who in ***New Patterns of Management*** observed: "The greater the loyalty of a group toward the group, the greater is the motivation among the members to achieve the goals of the group, and the greater the probability that the group will achieve its goals."<sup>95</sup>

According to Kondo, the ideas of three Western psychologists had a major effect on the logic of the Japanese motivation theory: Abraham H. Maslow (1908-1970) who founded the humanistic psychology movement and is best known for his hierarchy of human needs; Douglas McGregor (1906-1964) who is known for identifying the conflicting theories of work that are called Theory X and Theory Y; and Frederick I. Herzberg (1923-2000) who is known for job enrichment and his idea that two influences affect worker performance: motivation factors and hygiene factors.<sup>96, 97,98,99</sup>

So, how did Kondo structure his logical description of the issues related to motivation? To gain a complete understanding, we must learn about the final elements in the equation of influence on development of Kondo's logic: the knowledge transfer from the Western psychologists.

### **Specific Influences from Maslow, McGregor, and Herzberg on Japanese Motivation Theory**

*Douglas McGregor and Taylorism.* Douglas McGregor created a juxtaposition between two extremes on a scale describing how managers treat their employees: Theory X versus Theory Y management styles. Theory Y describes a participative style of management while Theory X

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<sup>95</sup> Rensis Likert, ***New Patterns of Management*** (New York: McGraw-Hill, 1961).

<sup>96</sup> Abraham H. Maslow, "A Theory of Human Motivation," ***Psychological Review***, Vol. 50, P. 370.

<sup>97</sup> Douglas McGregor, ***The Human Side of Enterprise*** (New York: McGraw-Hill, 1960).

<sup>98</sup> Frederick I. Herzberg, ***The Motivation to Work*** (New York: John Wiley & Sons, 1969).

<sup>99</sup> Yoshio Kondo, editor, ***Human Motivation: A Key Factor for Management*** (Tokyo: 3A Corporation, 1989).

describes a command and control style. While it is a common misconception that McGregor advocated for Theory Y over Theory X, this is not supported by his actual writings which are more observant of the distinctions in style (in fact later William G. Ouchi described Theory Z as a mid-point or compromise between these two styles (or in my view as a mid-point on a continuum scale – notably although his book on this topic was published in 1981, it is not referenced by Kondo and therefore is assumed to have had no influence on the development of Japanese motivation theory).<sup>100</sup> However, Kondo did follow Juran in the association of Taylorism with Theory X and he had a strong reaction against this management philosophy as it did not fit the Japanese cultural environment of work (as we had seen described by both Taiichi Ohno and Konosuke Matsushita).

Abraham H. Maslow and the Hierarchy of Human Needs. In the QC Research Committee report on motivation, Kondo summarizes Maslow's hierarchy of human needs as the theoretical starting point of his discussion on motivation and cited the five categories of human needs: physiological, safety, social, ego and self-fulfillment needs. In his interpretation of Maslow, Kondo noted that this hierarchy is not sequential as in a pathway to be pursued in order to achieve fulfillment: "what Maslow stressed in his original paper was that human needs do not ascend the hierarchy in orderly succession; all five needs are always present, but their relative importance gradually shifts from lower level [e.g., physiological] to higher level [e.g., ego and self-fulfillment] as our living standard rises. In thinking about motivation it is important to remember that human beings always have a variety of needs." Thus, a starving person may seek food as a first priority, but there a need for self-esteem still is part of their human need. In fact, the Theory of Attractive Quality that was proposed by Kano in 1983 is an extension of Maslow's hierarchy toward understanding motivation theory as it is related to customer perception about performance of product features. Customers are much more motivated to purchase "attractive quality" than "must be quality."<sup>101</sup>

Frederick I. Herzberg and Motivation Theory. Frederick Herzberg believed that human motivation is governed by two different factors which he called 'satisfiers' and 'dissatisfiers.' We are dissatisfied by what he classified as hygiene factors, including: low pay, poor benefits, company policies or administrative procedures, working relationships, supervision, job status or security, working conditions, and personal life conditions. People are encouraged by motivation factors such as: achievement, recognition, achievement of work objectives,

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<sup>100</sup> William G. Ouchi, *Theory Z: How American Business Can Meet the Japanese Challenge* (San Francisco: Addison-Wesley, 1981).

<sup>101</sup> Noriaki Kano, Nobuhiko Seraku, Fumio Takahashi, and Shinichi Tsuji, "Attractive Quality and Must-be Quality," (translation: Glenn Mazur) *Quality Journal*. Tokyo: Japan Society for Quality Control. Vol. 14, No. 2, 1984, 147-156.

responsibility, promotion, and intellectual and emotional growth. Based upon this Herzberg drew several conclusions:

- While people may be dissatisfied by a bad environment they are seldom satisfied by a good environment.
- Prevention of dissatisfaction with hygiene factors is just as important as the emphasis on the motivation factors,
- Hygiene factors typically are equally important, and they affect people independently of the motivation factors.
- Improvement generated by changes in hygiene factors are short term and cyclical, with the level of motivation returning to the original scale which leads to an “escalating zero point” on their performance scale (e.g., salary base keeps rising), but there is no final ‘stopping point’ where satisfaction is enduring. This encourages the syndrome among workers: what have you done for me recently?

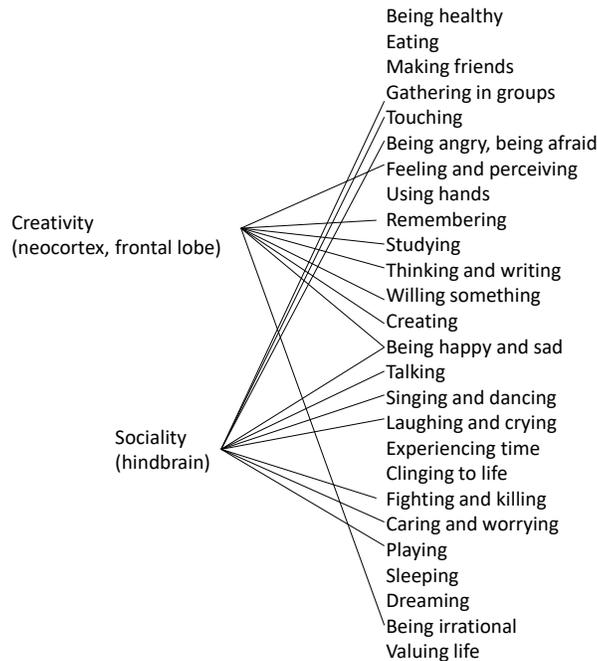
So solving the lower-level needs on Maslow’s hierarchy is the same as removing dissatisfiers from the work environment, while meeting the higher level needs on Maslow’s hierarchy will require the addition of motivators. Kondo noted that people are quick to identify dissatisfiers, but only have a vague idea of what satisfiers will make a difference for motivation. So Kondo emphasized a focus on providing suitable satisfiers as a more vital need because management will have a more difficult time in recognizing these factors.

### **The Logic of Kondo: Core Elements of Japanese Motivation Theory**

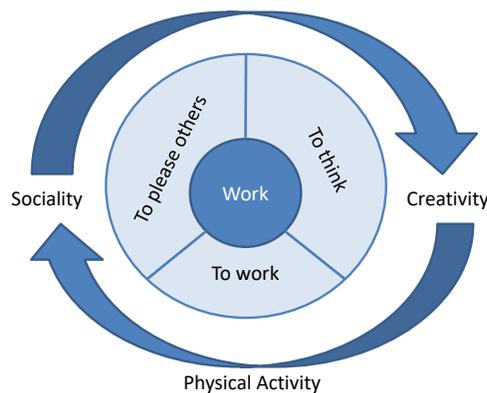
How is the logic of Kondo represented as a system? There are four models included in the logic of Kondo: model of human creativity and sociality, three elements of work, learning from experience using Plan-Do-Check-Act (PDCA), and steps that lead to improved ability. Of these models the first, second and fourth are unique to Kondo’s approach while PDCA, as previously described above is a standard approach to problem-solving and continuous improvement (Kaizen) as applied in the workplace by workers. What are these other three models?

In the first model Kondo describes the taxonomy of creativity and sociality that defines what is the human condition, according to the research of Toshihiko Tokizane, a Japanese scientist who did pioneering investigations in the study of the brain (1909-1973). Professor Tokizane taught physiological anthropology at the University of Tokyo beginning in 1948. His studies included the analysis of work performance and morphological characteristics such as light and heat and concentrated on the adaptability of human beings in response to characteristics that influence their lifestyle and workplace. One of the primary focus areas of physiological anthropology is to conduct research into the physiological and cultural aspects of human beings in all dimensions

of society, including working conditions. An objective of such research is to discover how to manage in ways that will improve the lifestyle in all dimensions. This field has a strong overlap with ergonomics (human engineering) and occupational safety and health. Professor Tokizane is considered the creator of this field of research and much of the findings have been based on the way that he defined human characteristics in the following model (presented by Kondo):<sup>102</sup>



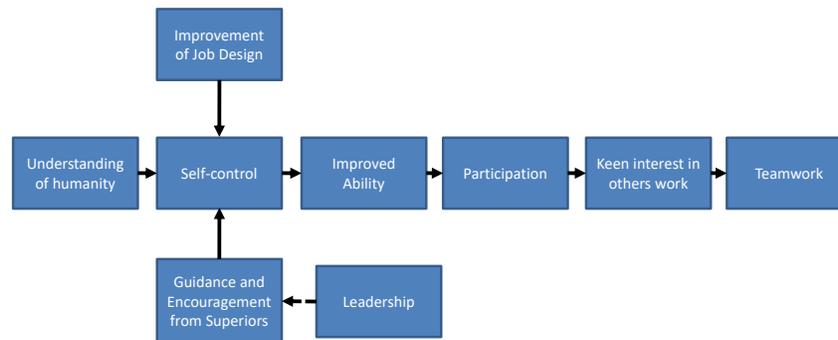
Based on this first model for understanding of humanity, Kondo developed a model to define the nature of work. He chose three elements of work as presented by Nishibori to describe the nature of work objectives: to think, to accomplish tasks, and to please others. This model is used to describe three types of action: creativity, physical activity, and sociality:<sup>103</sup>



<sup>102</sup> Toshihiko Tokizane, *Being Human* (Tokyo: Iwanami Publishing Company, 1970) (in Japanese).

<sup>103</sup> Eziaburo E. Nishibori, *Humanity and Development of Creativity* (Tokyo: Japan Productivity Center, 1971) (in Japanese).

Finally, the third model Kondo presented his original contribution by defining a logical system or architectural structure for relating these concepts for improving the capability of human workers. This model integrates all these concepts into a singular logical flow and summarizes how leadership and teamwork play significant roles in the work environment.



Kondo's logic regarding motivation is summarized in the following comments:

- "Simulating people's desire to work is motivation."
- "Since motivation is a matter of moving people's hearts and minds, it is not a question of technical know-how and is therefore probably not amenable to standardization."
- "In discussing human motivation, we often tend to dwell on the differences, e.g., the differences between Japanese and American culture or the different psychological makeup of individuals."
- "Rather than pursuing these differences we should search out the common elements, i.e., the greatest common divisor of human motivation. There is something apart from money which brings us running toward rewarding work."
- "According to Maslow, human beings always have a variety of different needs, and their relative importance changes as people become better off. These differing needs correspond to Herzberg's satisfiers and dissatisfiers, and it is clear that to motivate people we must not only try to remove sources of dissatisfaction, but also take positive steps to provide sources of satisfaction."
- "Providing satisfiers is made more difficult or easy by the nature of the work and the way in which it is allocated."
- "Nishibori's and O'Toole's ideas about human work are extremely valuable in this connection. Although these two men conducted their research independently, their results fit together. Both of them cite creativity, physical activity, and sociality as the indispensable elements constituting work."<sup>104</sup>

<sup>104</sup> James O'Toole, editor, *Work in America* (Cambridge, MA: MIT Press, 1973). For Kondo, the discovery of this study by the US Department of Health, Education and Welfare reinforced Nishibori's model and caused him to believe that it represented a general form for division of work.

- “If we adopt the approach of cerebral physiology and define humanity as those qualities displayed by humans and not by other animals as a result of the different functioning of the brain, it becomes much easier to understand. Creativity and sociality can be cited as the two main elements constituting humanity, and this is closely related to the three elements of work.”
- “The secret of human motivation is to actively incorporate humanity into our work and exercise it fully.”
- “The content of work and the way in which work is allocated both affect human motivation.”
- “When talking about responsibility, we mean the strong feeling that one must somehow or other achieve the objectives of a job which one has been given. Provided the aims of the work have been clearly explained, people’s sense of responsibility will increase in proportion to the freedom that they are allowed in the means and methods by which they can achieve those aims.”
- “In performing any job, we do need certain restrictions for ensuring safety and securing quality, but we should try to keep these to a minimum. People will naturally exercise their creativity and ingenuity if allowed wide leeway in means and methods.”
- “In discussing creativity the objection often arises that creativity is inconsistent with standardization. According to this contention, the scope for creativity becomes narrower as work is standardized, and it is eventually snuffed out altogether.”
- “Work standards consists of a description of the aims of work which must be achieved whoever is in charge of the job (e.g., quality standard), constraints which everyone must obey in order to ensure safety or maintain the quality built in by the previous processes, and a description of the means and methods to be used for attaining the objectives of the work. Of these, the description of the means and methods is essentially different from the other two items; it should be regarded not as orders to be obeyed by everyone, come what may, but as important information for reference to be used when needed. In other words, it is vital for everyone to treat these means and methods as ‘basic actions’ and try to build on them to create even better and more appropriate ‘applied actions.’ This, too, will create a sense of responsibility and release vast stores of originality and ingenuity.”
- “Some people claim that there is always a trade-off between factors such as quality and cost and quality and productivity and that improving one will adversely affect the other. They say that making the quality of a product or service too good will have the undesired effect of raising costs and lowering productivity and that quality improvement should, like all things, be taken in moderation. However, this attitude ignores the desires of the customer who actually uses the product, and it also suffers from complacency in that it disregards the existence of competitors. The flaw in this

argument is that it overlooks the multiplicity of quality improvement methods possible. It regards the optimum value of quality as being fixed, whereas in fact it is variable. When we realize this, we can exercise our creativity to find better methods for improving quality. If we then adopt these methods, improved quality results in both lower costs and higher productivity. Achieving such breakthroughs is made possible only by the determination of all those involved to make radical improvements by whatever means necessary, together with the wholehearted support and understanding of their bosses.”

- “Making work more creative is important for motivation. There are four steps required to achieve creativity: (1) *When giving work instructions, clarify the true aims of the work. Every job has an aim, and it goes without saying that achieving this aim is the most important thing.* Aside from mandatory restrictions relating to safety and quality assurance, information concerning means and methods should be given for reference only, and we should encourage people to devise their own best ways of achieving the objectives – ‘mandatory objectives, optional means.’ (2) *See that people have a strong sense of responsibility for their work.* Human beings are often weak and irrational and tend to try to shift responsibility onto someone else when their work goes badly, complaining or being evasive. It is therefore necessary to devise ways of nipping such excuses in the bud whenever they seem likely to appear. The ‘mandatory objectives, optional means’ approach serves this purpose, and techniques like stratification of data, analysis of data by mean value [e.g., analysis of variance (ANOVA)] or by regression, and the application of the orthogonal principle in the design of experiments [e.g., Taguchi analysis] are all effective devices for putting a stop to excuses. (3) *Give time for the creation of ideas.* By following the first two steps, people will feel as strong sense of responsibility for solving their problems. When they feel a strong sense of responsibility they will go back to the essence of their problem and think about it deeply, and this will result in flashes of inspiration and the creation of new ideas. Excellent ideas are most easily generated during those times when we have pondered the problem deeply and have arrived at a detached, meditative state of mind. An ancient Chinese proverb tells us that this kind of time occurs when we are horseback riding, lying down and relaxing, or sitting on the toilet. The times at which ideas come most readily are different for every individual. The important thing is to give people the time to be creative. (4) *Nurture ideas and bring them to fruition.* Newborn ideas created in this way are extremely fragile. If they are examined critically with the idea of picking them to pieces or squashing them down, it is very easy to obliterate them completely. However, to find out whether such ideas are really good or not, or to develop them in superior ways, they must be allowed to grow. It is often said that the main enemies of new product development are to be found within the company itself. This means that more people

are concerned with going around stepping on new ideas than with encouraging their development. A new idea is like a newborn baby, and raising it to maturity always requires someone to look after its interests and act as a loving parent. In most cases those in positions of authority are the only ones who can play this role. In other words, managers should not go around throwing cold water on new ideas but should become their patrons and encourage their growth.”

- “Those in positions of authority should consider in connection with human motivation: teamwork and employee participation and leadership which fosters this.”

The application of Kondo’s logic to the workplace develops responsible workers who have been endowed with an environment of freedom for creativity and can respond through a progressive social context by improving conditions and operations of work because their self-esteem has been increased and they become motivated to dedicate an even greater, sincere effort to enhance this constructive work environment and build upon this positive working culture.

### **Psychological Theory Technology Transfer in Reverse: Fourth Generation Sushi**

Several years ago, in a private conversation, Noriaki Kano told me a story to illustrate the highly interconnected relationship between American and Japanese quality. The called it the story of fourth generation sushi. Sushi is the Japanese delicacy that has traditionally been made with rice cooked in vinegar and draped with raw fish. Kano said this way of cooking sushi by a Japanese chef in Tokyo represents first generation sushi. Second generation sushi was cooked by an American chef cooking traditional sushi in Tokyo. Third generation sushi occurred as the American chef was cooking traditional sushi in Los Angeles. Fourth generation sushi occurred as the American chef returned to Tokyo to cook sushi with beef. Technology transfer for the methods of quality has likewise moved back and forth between the two countries over the past 70 years. Did this occur with the psychology of work and motivation theory?

In 1981 Dr. Deming broadcast the infamous “NBC Whitepaper: If Japan Can, Why Can’t We?” In 1982 this was followed by the publication of the highly influential book *In Search of Excellence*, by Thomas J. Peters and Robert H. Waterman, Jr. which preached the principle of pursuing progress in productivity through people. This caught the attention of American managers.<sup>105</sup> This book surfaced the issue about distinctions between well-managed American companies and those that were not as successful. Of the eight common themes observed by Peters and

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<sup>105</sup> Thomas J. Peters and Robert H. Waterman, Jr., *In Search of Excellence: Lessons Learned from America’s Best Run Companies* (New York: Grand Central Publishing, 1982). Although Peters later confessed that he made up much of the data in their study, the book none-the-less strongly influenced management for about a decade (see Tom Peters, “Tom Peters True Confessions,” *Fast Company*, 30 November 2001).

Waterman in the book, several were also related to the Japanese concepts of motivation which indicated the potential for 'universality' in their application: creating a bias for action or getting things done quickly; building autonomy through champions who would spark innovation in the organization; treating front-line workers as the source of quality and productivity; guiding every day practice as the job of managers; and giving autonomy to the shop floor as guided by centralized vision and values.

The transportability of Japanese motivation theory and work methods was debated for years as Japan began to move its factories to America. The showcase of course was the joint venture of General Motors and Toyota that was established in Fremont, CA – the New United Motors Manufacturing Inc. (NUMMI) plant (an operation that was under the managerial control of Taiichi Ohno as the head of Toyota's manufacturing operations). One of NUMMI's suppliers was North American Tool & Die (NATD), the company previously cited by Nishibori in the foreword to Kondo's book. The CEO of NATD, Tom Melohn, was also featured in the follow-on book and video program of Peters and Waterman, *The Passion for Excellence* which described the need to turn people working in the organization into heroes.<sup>106</sup> Melohn also wrote about his approach to motivation and his writings achieved high popularity in America. [Note that this conclusion is not universally accepted; others have written questioning the appropriateness of applying Japanese social dynamics and psychology of work to American industry on the theory that it leads to overwork and stress so that it generates loss of worker motivation – choosing a side on this argument and defending it could make an excellent essay question for a graduate level course on industrial psychology.<sup>107,108,109</sup>]

### **Benefits of the Team-Based Work for Business**

Some of the advantages of "responsible teamwork" over traditionally designed work include: increased job satisfaction observable in reduced absenteeism and turnover; improved internal communication with concomitant decrease indecision times; enhanced employee self-esteem; reduced variation in cost management and improved cost control; quicker decision-making which makes supply chain management more cost-effective; flexibility and rapid introduction of

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<sup>106</sup> Nancy Austin and Thomas J. Peters, *A Passion for Excellence: The Leadership Difference* (New York: Grand Central Publishing, 1989).

<sup>107</sup> Tom Melohn, *The New Partnership* (Essex Junction, VT: Oliver Wight Publications, 1994).

<sup>108</sup> Much of the objection to QC-Circles in the United States has originated from the unions that serve the American automotive industry. Two books illustrate this distinction and can be used to compare perceptions and complaints of labor unions against Japanese-style worker motivation: Ben Hamper, *Riverhead: Tales from the Assembly Line* (New York: Warner Books, 1991) and Joseph J. Fucini and Suzy Fucini, *Working for the Japanese: Inside Mazda's American Auto Plant* (New York: The Free Press, 1990).

<sup>109</sup> Frank M. Gryna, *Work Overload* (Milwaukee, WI: ASQ Quality Press, 2004).

business change initiatives; and increased quality from restoral of pride of ownership in work (or returning the joy). With so much benefit available to be gained, why shouldn't management work on such improvements?

### **Closing Inspiration for Motivation**

Dr. Kondo concludes his book with the following Japanese poem:

From *America, no Kokoro* by Gakussisha:<sup>110</sup>

“Let's get rid of management.”

People don't want to be managed,

They want to be led.

Whoever heard of a world manager?

World leader, yes.

Educational leader, political leader, religious leader, scout leader, community leader, labor leader, business leader,

They lead.

They don't manage.

The carrot always wins over the stick.

Ask your horse.

You can *lead* your horse to water, but you can't *manage* him to drink.

If you want to manage somebody, manage yourself.

Do that well and you'll be ready to stop managing.

And start leading.

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<sup>110</sup> This title assumes knowledge of the Japanese novel *Kokoro* by author Natsume Soseki, where the work kokoro means literally “heart,” it is more appropriately translated “heart of things” or “feelings.” The book deals with the transformation of Japan after the Meiji era into a modern society and the changing roles that occur. The novel illustrates the changes of values that come with changing roles and the importance of self over group. Today this term is used for the discovery of self as well as for the technology of bio-identification of individuals. Thus, the use of this poem is a subtle lesson that there is a need to return to the traditional values of the importance of the group through the control of one's self.

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