

Before the Deming's 14 Points for Management

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Abstract

W. Edwards Deming is mostly known for the « 14 Points for Management » that he recommended to implement when he gave his many four day seminars from 1981 to 1993. This paper aims at understanding how these 14 points were elaborated. The study is based on lectures he delivered in Tokyo in 1978 and in Paris in 1980. It appears that a psychological analysis of the audience helped him to find an approach that could make Western management adopt his philosophy.

Introduction

The four day seminars which Deming gave in America for 12 years, starting in 1981, were at first based on his 14 Points for Management. The guidelines were given by the books *Quality, Productivity and Competitive Position*, published in 1982, and *Out of the Crisis*, published in 1986. The schedule changed progressively from 1989 onwards and focused on the System of Profound Knowledge, which is the ultimate form of the Deming philosophy. This way of thinking is presented in *The New Economics*, published in 1993. Deming gave seminars in Japan for 30 years, starting in 1950. His teachings were based on Shewhart's theory according to *Economic Control of Quality of Manufactured Product*, published in 1931. At the same time, he tried to make America and Europe understand Shewhart's theory, through lectures he gave in Washington, New York, London, Paris, etc., but people did not understand his purpose very well. He was known as a statistician, and top management people believed that they had nothing to learn from him. However it is worth knowing how Deming explained his management philosophy in the West a couple of years before he wrote his famous 14 points. I wish I could contribute to this knowledge by reporting a lecture he gave in Tokyo in October 1978, and a set of lectures he gave in Paris in November 1980.

The Tokyo Conference (October 1978)

The International Conference on Quality Control, organized by the *JUSE* (Japanese Union of Scientists and Engineers) and the *IAQ* (International Academy for Quality), was held in Tokyo, 17-20 October 1978. The meeting was attended by 3,000 people, including mainly Q.C. engineers ; half of them were Americans. 157 presentations were given in 3 days, with four parallel streams. Deming gave a 30 minutes lecture during the first day, a presentation which was not especially highlighted on the conference schedule. I listened to him very carefully because some Japanese colleagues of mine alerted me to the importance of the session. Under the title *Quick Review of Some New Principles of Administration*, Deming proposed 25 principles for management, and said in introduction that Japan applied them while the rest of the world, especially America, neither understood nor practiced them. This lecture contained most of the ideas which he presented later during his four day seminars, but the overall presentation was quite different. At the time, he strongly stressed the importance of statistical methods, just as he did at his first seminars in Japan. He said in introduction :

It will be obvious that recognition of problems in quality, uniformity, and economy, and evaluation of attempts to solve them, require statistical methods and statistical thinking. Statistical methods cover every step in the production-line, from specifications and tests of

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incoming materials to tests of product in service, to consumer research, design and re-design of product. This is why, as Shewhart said, the statistical control of quality is the broadest term possible for the problems of economic production (ICQC, 1978, p. A3-1).

The Deming's 14 points which appeared 3 years later explain the same ideas in a different style. During his four day seminars, Deming did his best to optimize his message to American managers by putting more emphasis on management behavior than on statistical methods. He did not reduce the importance of largely using statistical methods, and he constantly explained that there is no good management without statistical thinking, but he strongly stressed the responsibilities of top management. For example, he wrote at the beginning of *Quality, Productivity and Competitive Position*: « The 14 points are obviously the responsibilities of top management no one else can carry them out. Quality is everybody's job, but quality must be led by management ». (Deming, 1983, p. 16)

The 25 principles of the Tokyo 1978 conference can be divided in 4 groups :

Group 1. (principles 1 to 5) The new philosophy

These five principles concern the supervision of production-workers, the best practices for training and hiring, the failure of specification limits to guide the production-worker and the need to include the concept of statistical control in job descriptions. It is clearly stated that management must use control charts in order to separate problems which belong to the system from those which belong to individuals or special events. The first point starts with the words :

It is demoralizing and costly to call to the attention of a production-worker a defective item that he has made, when he is in a state of statistical control with respect to the cause of that defect. To do so would help him not at all, as he is, in effect, drawing blind-folded samples of beads, white and black from a bowl of black and white beads, thoroughly mixed. He can not govern the random appearance of black beads in his samples, his product : he can not beat the system. He is handicapped by the proportion of black beads in the system. Only the management can change the proportion of black beads in the bowl (ICQC, 1978, p. A3-1).

Group 2. (principles 6 to 11) Economic losses

These six principles require management to take measures in order to reduce chaos in the company, and consequently to eliminate the source of big economic losses. They establish that causes of high production costs may be usefully subsumed under two categories called : « Faults of the system (common or environmental causes) » and « Special causes ». Percentages are estimated : 85% for the former and 15% for the latter. Deming said : « confusion between the two types of causes leads to frustration at all levels, and leads to greater variability and to higher costs -- exactly contrary to what is needed » (ICQC, 1978, p. A3-3). Once more, he advised to use simple statistical techniques. He explained that this practice minimizes the cost of two common mistakes : (1) looking too often for a special cause and (2) doing too little or nothing about special causes.

Remark. It's worth noticing a relevant observation about control charts, that Deming did not reproduce in his further writings, as far as I know. He wrote : « What is not in the books, nor known generally amongst quality-control engineers, is that the same charts that send statistical signals to the production-workers also provide for management a measure of the totality of faults that belong to the system itself. » (ICQC, 1978, p. A3-3).

Group 3. (principles 12 to 15) *Constantly improve the production-line, viewed as a system*

These four principles stress the fact that problems of the system are problems for management and show the way to solve them. Deming pointed out that a prerequisite to system improvement is achieving statistical control of the main quality-characteristics of a process. Then he said that mechanical governors that hold characteristics within specifications do not improve the system. It was an alarm. Some of us remember that during the 70's a great myth in American management was the belief that « automation » would solve all the problems of quality and productivity ; his four day seminars discredited it. But these four principles mainly aim at explaining the management's job ; therefore it is not surprising to find a sharp diatribe against the American management practices. For example Deming said : « The usual claim of management, in the absence of statistical methods, that 'we are doing everything that we know of to improve quality and to decrease costs', though ever so true, is only a confession of wishful thinking without benefit of knowledge of statistical principles of administration. » (ICQC, 1978, p. A3-4).

Principle 15 goes along with the famous chart of production viewed as a system, also reproduced in *Out of the Crisis* and *The New Economics*, which was presented to Japanese industry leaders in 1950. The caption is : « A process has an identity and a predictable capability only if it is in a state of statistical control. In this state, the main quality characteristics of the product will dependably fall tomorrow within predictable limits. Output can be predicted ; likewise cost of production ».

Group 4. (principles 16 to 21) *The consumer is the most important point*

These six principles concern the producer-consumer relations. A fundamental rule, that Deming explained later in *Out of the Crisis*, was stated as follows : « Performance of a product is the result of interaction between three participants : (1) the product itself ; (2) the user and how he uses the product ; (3) instructions for use, training of customer ; service provided for repairs » (ICQC, 1978, p. A3-4). Then he explained how management should proceed in order to get the best performance of a product. He separated two different types of problems : (1) what to do with the product already made, and (2) how to improve the future product. He said that statistical methods offered the economical approach to the improvement of the process. He also said that inspection is not the way to obtain the required quality at minimum cost : « The idea that the solution lay in inspection and more inspection gave way here and there that something should be done with the process, to reduce the proportion of defectives made » (ICQC, 1978, p. A3-5).

Last but not least, four other principles cannot be included in any of these groups :

Measurement is a production-process (No 22) The product is a set of numbers, called measurements. There is no identifiable system of measurement unless it is in statistical control.

Due care in manufacture can not be defined operationally (No 23) Hence any requirement of due care in manufacture can have no legal force. Care in manufacture, however, can be defined and measured.

The danger of awards (No 24) The practice of instituting a so-called « award of merit » to a production-worker or to a group of workers for best performance may well be demoralizing unless the award is based on satisfactory statistical measurement that will distinguish good performance from plain luck.

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The adoption of statistical methods (No 25) Statistical methods cannot be installed in a company or a governmental organization. « They grow from the roots of knowledge and experience » (ICQC, 1978 p. A3-5).

What has changed ?

The comparison between the 25 principles of the Tokyo conference and the 14 points of *Out of the Crisis* shows that five points can be related to these four groups :

Point 2	<i>Adopt the new philosophy</i>	Group 1
Point 3	<i>Cease dependence on inspection to achieve quality</i>	Group 4
Point 5	<i>Improve constantly and forever the system of production and service</i>	Group 3
Point 10	<i>Eliminate slogans, exhortations and targets</i>	Group 1
Point 11	<i>Eliminate numerical goals and quotas</i>	Group 2

One could hardly relate the nine other points with any of the 25 principles, because the 1978 conference was intended for an audience of QC engineers while the 14 points especially address top management.

The reader of *Out of the Crisis* may be puzzled by the fact that Point 2 “Adopt the new philosophy” takes only two pages, without really explaining what the new philosophy is. On the contrary at the 1978 Tokyo conference Deming did not use the term “new philosophy” but clearly explained what it was. Deming said then, as he had been doing in Japan since 1950, that the “new style of management” resulted from statistical methods and statistical thinking. Therefore we can presume that when Deming started his campaign for the transformation of American management in 1980, he decided to quit the “hard” approach which was so successful in Japan, and to adopt a “soft” approach which could induce American managers to change their way of thinking. That is why the 14 points start with “Create constancy of purpose”. It seems that Deming intended to make the reader discover the new philosophy progressively by reading the whole book instead of starting with the theoretical basis of the new philosophy. During his four day seminars, he explained very carefully that his 14 points resulted from the Theory of Variation, due to Walter Shewhart (I remember how respectfully he stood up when he pronounced his name). Moreover it can be noticed that this explanation is the leading thread of the Scherkenbach’s book *The Deming Route to Quality and Productivity*, which was one of the books offered to the attendees.

Thus, by comparing this Deming’s lecture, Fall 1978, with his many presentations at the climax of his Western campaign, until 1993, it is clear to me that the tactics he had been adopting since 1980 consisted in giving strategic and psychological principles in a first step, then statistical principles in a second step. This idea has been confirmed by a series of lectures he gave in Paris, Fall 1980.

The Paris conference (November 1980)

In 1980, the French Association for Quality Control created a national prize which was derived from the Deming Prize. The Tokyo conference made us understand that a national award can give management a boost for improving quality, and we decided to do the same in France. The Board of Directors approved the project, and the magazine *Usine Nouvelle* agreed

to sponsor it. We invited Deming to deliver the opening address of the award ceremony and to give a lecture in front of an audience of industry leaders. Deming kindly accepted and spent one week in Paris in November 1980.

The award celebration. The meeting was held on November 26th in a large restaurant on the Champs Elysees. We invited 1,000 people, including the most important French CEO's, and most of them came. The meeting was chaired by the minister of Technology, Monsieur André Giraud, who sat in the centre of the rostrum between Deming and the president of *Usine Nouvelle*. The Deming's address lasted about 15 minutes. He said that everybody in a company, from the top to the bottom, should learn new management methods based on statistical thinking. He insisted on the fact that these methods made « shareholders happier, employees happier, customers happier ». Despite the fact that the speech was translated into French, the audience was not much interested. I expected that the minister and some CEO's would ask Deming some relevant questions during the reception which followed, but they only exchanged polite words. Deming was almost unknown in France, except for some statisticians. At this time, the big managerial fad was the *Zero Defect* system taught by Philip Crosby Associates, and some companies were starting to create so-called "quality circles". The influential *Medef* (a French Management Association) supported them, because they were fascinated by the Japanese industrial breakthrough, but they did not understand the Japanese management philosophy. They believed that quality circles aimed only at the workers motivation. Few French people heard of the famous television programme « If Japan can, why can't we ? », broadcast in June 1980 by CBS all over America.

The conference with top management. Hundred people attended the conference with top management organized by the French Association for Quality Control in the afternoon of November 25th. The Deming's lecture lasted 90 minutes. He said that American companies were heading in the wrong direction because they were only seeking short term profit. He explained that the knowledge of statistical methods is necessary to improve industrial processes, thus leading to better quality and productivity. He said that this approach is beneficial to everybody : shareholders, employees, customers. But the attendees were skeptical, because they were convinced that Management by Objectives, according to the American way, was the best in the world. Deming also presented the Plan-Do-Study-Act cycle, which had been largely adopted in Japan for many years already, but the discussion provided evidence that French top management people did not understand the concept of continual improvement. Other lecturers - French CEO's - explained that their companies had invented wonderful management methods. Deming was disappointed.

However, I attempted to make his trip as successful as possible by inviting two influential men, Jacques Bayle and Daniel Froissard, at a dinner with him. They were the chairman and the general manager of a management training center named *CRC*, supported by the French Management Association, an organization somewhat similar to the *JUSE* (Union of Japanese Scientists and Engineers). I remember that Deming explained them how he taught management to Japanese top managers, and how their success was caused by the fact that they considered their company as a system. Deming was charming, and my hosts were delighted, but it was not enough to start a cultural revolution in my country.

A factory visit. After the conference, Deming asked to visit a French factory. I passed the message to Monsieur Fourier, the vice president for finance of Thomson Brandt -- a large consumer electronics company -- who was sitting next to me. He agreed to organize a visit, and we visited a large television factory in Angers on November 27th. Deming and I were accompanied by the plant manager and a sales manager who came from Paris. Deming tested

his teaching approach with French production engineers and managers. He asked : « do you have control charts ? » They did not have any. He explained them the concept of common causes and special causes of variations. He showed them, with simple calculations on a sheet of paper, how they could rapidly make important savings thanks to some changes in the production system. For example they could probably save 2 million dollars per year and increase productivity by re-designing an incoming inspection workshop because the quality characteristics of incoming materials were under control. But these people did not understand at all. I listened to this talk, which he reported later in *Out of the Crisis* :

When I ask for data on inspection, to learn whether they indicate that the process is in control, or out of control, and at what time of day it went out, and why, or ask about differences between inspectors and between production workers, in an attempt to find sources of trouble and to improve efficiency, the answer is "the data are in the computer". And there they sit (Deming, 1986, p.139).

The AFCIQ convention. Finally, Deming was the guest of honor at the annual convention of the French Association for Quality (AFCIQ), which was held the same week in Paris, and he talked with French quality engineers for some hours. My colleagues and I were fascinated by the Japanese achievements, and Deming told us how this could happen. He stressed the statistical methods :

Any defect along the line stops the whole thing. A stoppage for one minute runs up costs, terrifically. Americans forget that. They find it too late. Quality control is more and more important with automation because of the high cost of stoppage. Training people cannot be accomplished, methods of training cannot be understood, when you have no idea about statistical methods. The Americans have not come to that stage yet, they have been out for many years. Here is the road now (AFCIQ, 1980, p. 2).

He also said :

American industry has not learnt how to use present machinery efficiently; they have not learnt supervision; they do not understand improvement of process; they think they will get improvement by investing in new machinery, and what they will get is a new set of headaches, a new set of problems (AFCIQ, 1980, p. 2).

His description of the JUSE education programme was a shock. He said that four different forces came together to make « an explosion » in Japan. The first force was provided by his conferences with top management, that started in 1950. The second force was provided by his seminars with hundreds of engineers. The third force was provided by his talks with a group of leading statisticians who taught statistics to thousands of engineers. The fourth force was provided by the Japanese Union of Scientists and Engineers (JUSE). He said :

As a matter of fact, JUSE taught, between 1950 and 1970, 15,000 engineers. The courses were rudimentary statistical methods to use in production. They also do give courses, more and more, advanced courses for statisticians, advanced courses of statistics for engineers. And continuously, courses for management. The courses for management are difficult, yet they are booked up for seven months ahead, today. All these four forces came together in 1950 and produced an explosion. And this explosion has continued (AFCIQ, 1980, p. 3).

He also said :

Japanese management people use difficult methods, everywhere. On reception of incoming materials they do not accept defective materials. They teach vendors quality control. Japanese manufacturers also learnt something that is useful in production, namely to share

their manufacturing concerns with all the others; so the entire industry improves. I taught top management in all my visits, 18 in all, and their eagerness to learn how to use statistical techniques was very great (AFCIQ, 1980, p. 3).

Conclusion : constancy of purpose ; improvement of teaching

During the many years he taught management, Deming maintained a consistent pattern, but an important change occurred in 1980. The Tokyo 1978 conference had provided him with clear evidence that Americans did not understand his message when he said : « The leap forward in quality in Japan was not an accident. It was the success that followed concerted, determined, methodical efforts, throughout all Japanese industry, at all levels of production, including, of course, management, to put the statistical methods to work » (ICQC, 1978, p. 1). Perhaps the teaching approach did not suit the American audience. The famous television programme broadcast in June 1980 immediately resulted in an avalanche of requests from top executives, who presumably wanted to adopt a new style of management. Thus it became urgent for him to find an adequate approach. Until his first 4 day seminar in 1981 Deming certainly applied his Plan-Do-Study-Act cycle to his teaching and tried new presentations on a small scale.

Probably, Deming realized that the Americans could not believe that the Japanese achievements were due to statistical thinking. The reason is that they had been working for 30 years with statistical methods that did not succeed. Under the name “Statistical Process Control” a lot of American Q.C. engineers had been using statistical methods, but none of them true to Shewhart’s principles. They had been making big efforts but top management did not pay attention to them. In terms of competitive position, these efforts were doomed to fail. Too long American top management continued to believe in methods which made money on the short term. Deming wrote to me :

The ways of American management could cause your country incalculable harm. American management must change. This is the theme of my seminars. American management counts dollars, neglecting people, and failing to keep ahead in quality, productivity, and service (Deming, personal communication, April 10, 1984).

Therefore, most American top managers were seeking a quick fix that did not exist. They could see that Japanese factories had defect rates 20 times lower than American factories. They were ready to accept any explanation, except that the success of the Japanese industry was due to statistical methods and statistical thinking. This psychological analysis probably guided Deming when he wrote his 14 points for management.

I hope it was useful to point out a rather unknown aspect of Deming’s history, because we should not consider the future without understanding the lessons of the past. Since the exciting events of the early eighties, when Deming’s ideas spread in the West, it seemed at first that the Deming seminars had an impact.

But did they really ? The effects on the day to day working of companies are still weak ; for example, 20 years later, performance rating still has as much importance in management, and the quarterly dividends have as much influence on the Stock Market.

As with all the great revolutions of thinking, we will need much time to see these concepts evolving. In the long run, the ideas of Deming will undoubtedly be essential, but we cannot foresee the paths by which this transformation will come about.

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