

## How the Japanese learned to compete

By John Dowd

After World War II, Americans didn't worry much about foreign competition. In effect, they had no competition. Most of the industrial world lay in ruins. US car makers competed with one another on the basis of style, not reliability. The problem for US business was not how to be competitive, but rather how to produce more. Management training and business schools concentrated on the methods needed to produce more.

The competitive picture had actually started to change in the 1960s, but Americans were slow to see the shift. By 1980, it was much more obvious. Something had changed.

On June 24, 1980, a National Broadcasting Co (NBC) television program was aired with the title *If Japan Can, Why Can't We?* The TV program was in several segments. One featured the use of robotics and another focused on advanced techniques in inventory control. But the last section, and the segment that had the most impact, featured an American whom few had ever heard of, Dr W Edwards Deming.

Deming (1900-93) had been a key contributor to the Japanese economic recovery after the war, but had lived in relative obscurity in the US. That was about to change. After the television program, his phone began to ring continuously.

Deming is often credited with teaching the Japanese about statistical quality control (SQC). Even noted quality expert Joseph Juran often said that Deming taught the Japanese SQC. That is mistaken.

It is true that he taught the techniques of the control chart during an oft-repeated course over several years in Japan, but by the time Deming began lecturing, the use of SQC was already being widely promoted by the Supreme Allied Command (SCAP, for Supreme Commander of the Allied Powers) and the Union of Japanese Scientists and Engineers (JUSE).

Some people even credit Deming with having taught TQM (total quality management) and Kaizen (continuous improvement) planning. He did not. Nor did he teach about just-in-time inventory-management systems. He did not teach the Japanese his famous 14 points; in fact, there was no collection of points when he lectured in Japan, and it could be argued that the 14 points that eventually emerged were as much a product of what he learned from the Japanese as they were from what he taught them. Here is what happened and what he did teach.

Deming first visited Japan in 1947 to assist SCAP in surveys of housing, agriculture and unemployment. At the same time, the communications section of SCAP was teaching Japanese industrialists (particularly in electronics) the fundamentals of statistical control of quality. While the techniques taught were based on those he and others had developed through the 1920s and 1930s, he was not involved in that initial teaching. [1]

The managing director of JUSE at that time was Kenichi Koyanagi. It was he who asked Deming to speak at a dinner in Tokyo in July 1950. Prior to his talks to management, Deming also met for planning sessions with Ichiro Ishikawa several times. Ishikawa was a highly influential Japanese industrialist. He was president of JUSE, but his real power came from his leadership of the large industrial coalition. It was Ishikawa who issued the invitations to 21 top industrial leaders to listen to Deming. The invitations were not ignored.

The Japanese knew they were dependent on international trade to fuel their recovery. They were already being taught quality-control tools and techniques and had a well-educated and practiced workforce, so that is not what Deming was there to teach.

Ishikawa wanted Deming to give a message that went beyond the techniques of SQC and shop-floor tools for improvement. He wanted industrial leaders to be exposed to a global strategy for Japanese industry as a whole. By what method would Japan pull itself out of its crisis?

He asked Deming to lecture on the responsibilities of management. And Deming did just that, both at the dinner and at the Mount Hakone conference center a few weeks later. Deming's own summary of what he taught them can be found in a book about him, *The World of W Edwards Deming*, written by his assistant Cecelia Killian, who worked with him for 40 years. This correspondent also subsequently obtained a transcript of his talk in Mount Hakone.

He told the assembled industry heads about the new economic age that was just beginning and what they would have to do to survive and flourish in this new global economic environment. He told them about the chain reaction that occurs when one becomes totally focused on quality improvement.

This is a key lesson because with attention to quality, the company begins a journey on a "virtuous circle" [2] of simultaneously improving quality and lowering costs. As quality improves, there are less rework, scrap and waste of all kinds. As products become more attuned to customers' needs, there is less effort spent producing items people don't want. Costs go down. Quality improves. Thus paying attention to quality becomes the primary competitive strategy. Understanding this is vitally important.

I remember vividly a videotaped interview of Deming shot when he was in his late 80s. He says quite clearly, "It's very simple, really. Pay attention to quality first. Quality goes up and costs go down. You will have less waste, less rework, less scrap. You enter the market with better and better quality and lower and lower cost. You will capture the market." In 1950, he was prophetic.

He proposed that the Japanese use market research. It was an emerging field in the United States and almost unheard of in Japan. He told them they would have to travel to where the customer was to do this. Deming had gained expertise in sampling when he worked for the US Bureau of the Census, and he applied that statistical expertise to understand customers better.

Think of General Motors' blunder of trying to sell the Hummer and Toyota's success with its hybrid car to understand the importance of this lesson. Quality must begin with the customer.

Another main lesson Deming taught was the need for top management to take personal responsibility for the quality of the product. It is not enough to teach the tools (eg statistical quality control - SQC) of quality improvement, it is also necessary to create an environment where they can be used. Only management can do that. Managers must understand that this is their responsibility and theirs alone.

Without long-term consistent and insistent leadership on quality from management, Japan would not find its way out of the crisis. An improvement here and there would not be enough to make significant change.

Deming taught the Japanese the importance of seeing improvement, product design, and manufacturing as never-ending processes. He introduced an early version of what has become widely known as the "plan, do, study, act" (PDSA or sometimes PDCA, for "plan, do, check and act") cycle. He called it the Shewhart cycle [3] as its origins were derived from Walter Shewhart's early work at Bell Labs. Again this is critical.

PDSA is roughly analogous to the scientific method. In that method, one has a theory (or hypothesis), and he puts it to the test; he studies the results and takes action based on those results. This is the road to scientific learning. PDSA is the road to organizational learning. Peter Senge wrote about the "learning organization" in 1990. Deming taught the method to become a

learning organization in 1950.

Much of modern-day competitiveness is based on management accelerating the rate at which improvements are made. The key to this is effective means of learning. Time spent on the superstition of "managing by the seat of the pants" is often waste.

Deming advised them that a supplier is a partner. Relationships with suppliers must be based on cooperation and trust. Adversarial relationships result in waste. Supplier relationships based on Deming's teachings change fundamentally and, even better, both supplier and customer win.

Deming showed how customers and suppliers are brought into, and become part of, the production system. Systems thinking is the key. The supplier-producer-customer network works together as a system.

Any country or industry that follows these basic principles will become competitive in the global economy and begin to gain share in the markets in which it does business. Speculation is not required. As we say in statistics, "The data are in."

The methods outlined above that Deming taught are not difficult to understand, nor are they proprietary. Anyone can do it. But it is not so easy to do. Change is required. For that reason, those who do begin this journey of continual improvement and competitive gain will tend to gain a consistent advantage of those who squander the opportunity.

In his 1986 book *Out of the Crisis*, Deming asks (rhetorically), "Need any country be poor?" For any country willing to modify Deming's fundamental principles to suit its own culture and population, the answer may well be "No."

### **Notes**

1. To say he was not involved is not exactly true. He had worked in the US to help develop the Z1.1 and following standards on which the courses were based, and he worked closely with Walter Shewhart (1891-1967) in the development of the original tools of statistical quality control.
2. "Virtuous circle" describes a spiraling instability to economic equilibrium that has desirable consequences. There can also be vicious circles.
3. Shewhart was a physicist working at Bell Labs in the 1920s and 1930s who invented the statistical control chart. He and Deming collaborated on what ended up being an important book, *Statistical Method from the Viewpoint of Quality Control*.

**John Dowd** has been teaching and consulting in the area of productivity and quality improvement and strategic planning and industrial statistics for more than 25 years. He was designated by W E Deming as a "master" and has worked in more than 25 countries.