CONTROL DE LECTURA

LECTURA 3

The Roots of Quality Control in Japan

An Interview with W. Edwards Deming[6]

Dr. Deming, you said it will take about thirty years for the United States to catch up with Japan. This is a somewhat pessimistic view of the United States. Would you elaborate on this point?

I don't really know how long it will take. I think hit will take thirty years; it should take all of thirty years. I don't think America will catch up with Japan because, so far as I can see, the Japanese system has the advantage over the American system. For example, consider the principle of constancy of purpose, which is absolutely vital and is number one in my Fourteen Points. It refers to planning for the future with constancy of purpose. (See Table 14-3 for Dr. Deming's fourteen points)

Now in America some companies certainly do have constancy *of* purpose, but most do not. Most have a president who was brought in to improve the quarterly dividend. That's his job, you can't blame him for doing it. He'll be there a while, then go on to some other place to raise the quarterly dividend there. For instance, someone told me that there were five candidates for president of one of the biggest and most famous of America's companies. When one of them was selected, the other four resigned from the company .*Such* a thing could not happen in Japan. So you see, the American system is so set up that it cannot use the talents of its people. That's very serious.

People cannot work for the company. They only get out their quota. You can't blame a person for doing the job that is cut out for him since he has to pay his rent and take care of his family. You can' blame him. but you can blame management for a situation in which people cannot work for the company. An employee cannot remain un the job to find out for sure what the job is. The foreman does not have time to help him. As a matter of fact, the foreman may decide a particular person cannot do the job at all and perhaps should be let go. People report equipment out of order and nothing happens. If someone reports equipment out of order more than three or four times, that person is considered a troublemaker. lf he tries to find out more about the job from the foreman, he is considered a troublemaker. People find out that it is impossible to do what is best for the company or do their best work for the company. They just have to carry on as best they can, given the handicaps.

In addition, people have to use materials that are not suited to the job, and this creates a sense of desperation. There isn't much they can do about it—if they report, or try to do something, they are labeled troublemakers. This situation does not exist in Japan. There, everyone is willing to help everyone else.

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[6] Dr. W. Edwards Deming, recognized as the inspirational force behind the postwar quality control movement in industrial Japan, is the world's foremost authority on the development of quality control standards and procedures for industry. He has been a leading consultant in statistical studies and industrial applications to American and Japanese companies for over 35 years. These edited interviews were given by Dr. Deming to the Pacific Basin Center Foundation on September 8. 1981, and July 28, 1984, and are reproduced here by permission from: *Pacific Basin Quarterly,* Spring/Summer 1985, New York.

TABLE 14-3

DR. DEMING'S FOURTEEN POINTS

1. Achieve constancy of purpose
2. Learn a new philosophy
3. Do not depend on mass inspections
4. Reduce the number of vendors
5. Recognize two sources of faults:
   Management and production systems
   Production workers
6. Improve on-the-job training
7. Improve supervision
8. Drive out fear
9. Improve communication
10. Eliminate fear
11. Consider work standards carefully
12. Teach statistical methods
13. Encourage new skills
14. Use statistical knowledge

*Source: "*The Roots of Quality Control in Japan: An Interview with W. Edwards Deming", *Pacific Basin Quarterly,* Spring/Summer 1985.

Dr. Deming, as you've mentioned, one of the Fourteen Points emphasizes constancy of purpose. Personally, I learned a great *deal from that. Could you elaborate a little more on that point?*

A good way to assess a company's constancy of purpose is to evaluate the source of ultimate authority in that company. To whom does the president of the company answer? Does anybody own the company? Do the owners answer to the stockholders? The stockholders, thousands of them, who want dividends—to whom do they answer? Do they answer to their consciences? Do they answer to a built-in institution? Do they answer to a constitution of the company? Is there a constitution for the company?

Some companies have a constitution. In medical service, for example, you have some constancy of purpose. Not all, but some nursing homes or other medical institutions are under the governance of a religious board, and they're very exact about service. The head of the organization answers to constancy of purpose. There is a constitution with an aim of going beyond the making of dividends.

You have to pay to keep such institutions going, but their job is service. The reason why the public school systems fail in America is because the schools don't answer to anybody. There is no constitution. What is their aim? Is it to teach, or to produce? Is it to help youngsters that have ability to develop that ability, or is it something else? I don't know. The aim is not stated, so the schools are failing.

We *hear that American companies are you changing and adopting such things as quality control. Do you think American companies are heeding your message?*

Many companies are forming *QC* circles in America without understanding what

they're doing. QC circles cannot be effective in the absence of quality control which means management actively adopting my Fourteen Points. Many companies are forming QC circles because management wants a lazy way to avoid the job of improving quality and productivity. These circles will make a worthwhile contribution if they are given a chance, hut QC circles alone are not quality control. Once it becomes obvious that management is working on the Fourteen Points and is trying to do something to make people more effective in their work, then the workers will be creative.

Can you imagine people in a QC circle being effective when half of them will be turned out on the streets when business slacks off? Can you imagine an effective QC circle when half or even fewer of the people involved were rehired after being laid off during a slump? People have to feel secure. That means, according to the words derivation, "without concern," from the Latin *se* for "without" and *cure* meaning "care" or "concern." Security means being able to speak, ask each other questions, and help one another. There is nothing to hide and one to please. Most people who work are only trying to please somebody because otherwise they might not have a job.

The lack of constancy of purpose in America is very serious. For example, I received a letter from a man who asked what he could do that would have a lasting benefit for his company. The problem is, the man will probably be where he is for only two more years. At the end of two years, he will either be promoted or he will look for a job with another company. He asked what fire he could start that would continue to burn after he leaves his job, whether he is promoted at the some company or goes elsewhere. It's a very serious question. I don't know if there is an answer.

There is another serious matter in this country: the supposition that quality control consists of a bag of techniques. Quality control is more than just a set of techniques. But you cannot have quality control without physical techniques. One of my Fourteen Points is to remove fear within a company, to make people secure. I don't know of any physical techniques to bring this about. But it is through physical techniques that I discovered the existence of fear. Fear is costing companies a great deal of money and causing a lot of waste in out-of-order machines and rework. Fear causes wasted human effort and wasted materials. It arises because people do not understand their jobs, and have no place co go for help. I don't know of any statistical technique that which to establish constancy of purpose and eliminate fear.

Statistical techniques are certainly necessary for purchasing and selling materials, since without them you cannot measure or understand the quality of what you are buying. American industry and American government, especially the military, are being rooked by the practice of purchasing from the lowest price. They are forcing everyone to conform to the lowest price. That is wrong because there is no such thing as price without a measure of quality. Purchasing departments are nut prepared to measure quality; they only know arithmetic. They understand that thirteen cents less per thousand pieces translates into so many thousands of dollars per year. But they don't understand chat the quality of these pieces may he so bad that it will cause a great deal of trouble. You *already referred to American management's lack of understanding of quality control of production processes. Could we go back to that?*

Must American managers have no idea how deep the trouble is, and those who do have no idea of what can he done. There is no way for them to learn what to do that I know of. *In the Unite' States, I have been intrigued by the notion of the trade-off between quality and price and the trade-off between productivity and quality. Here these are seen as different things, and yet your message, which you say the Japanese have accepted, is not to treat quality and price, and productivity and*

quality as trade—offs. Why has this been so difficult for Americans to understand?
Americans simply have no idea of what quality is. Ask almost any plant manager in this country and he'll say it is a trade-off, that you have one or the other. He does not know that you can have both, and that once you have quality, then you can have productivity, lower costs, and a better market position. Here, people don't know this, but they know it in Japan. In 1950 in Japan, I was able to get top management together for conferences to explain what they had to do. No such gathering has ever been held in America and I don't know *it* anybody has any way of organizing one. In Japan, Mr. lshikawa of JUSE organized conferences with top management in July 1950, again in August, then six months later, and so on. Top management understood from the beginning what they must do, and that as they improved quality, productivity would increase. They had some examples within six months, and more within a year. News of these examples spread throughout the country, and everyone learned about them because Japanese management was careful to disseminate the information.
The supposition of so many Americans that better quality means more gold plating or polishing, more time spent to do better work, is just not true. Quality improvement means improving the process so it produces quality without rework, quickly and directly. ln other words, quality means making it right the first time so you don't have to rework it. By improving the process, you decrease wasted human effort, wasted machine time and materials, and you get a better product. If you decrease rework by six percent, you increase the productivity of a production line by six percent, and increase its capacity by the same amount. Therefore, in many cases, increased capacity could be achieved in this country simply by reducing wasted human effort, machine time, and materials. In this country, better use of existing machinery—not new machinery or automation—is the answer.

How do you respond to American management's idea that mechanization and automation are cost-saving devices rather than quality-improvement devices? In Japan, mechanization and automation are seen quality improvement, obviously with cost-saving benefits on the side. But in Japan they're working toward mechanization automation, and the use of robots ask quality-improvement devices.

New machinery and automation very often bring higher costs, not lower ones They also bring headaches and troubles which a company is unprepared to handle. The result is that they decrease production increase costs**,** lower quality, and create problems the company never had before . The best thing to do is learn to use what you have efficiently. Once you learn that, then there's a possibility you may learn to use more sophisticated equipment. I'm afraid that time is a long way off this country.

In Japan, now that they're using present equipment successfully and efficiently and cannot extract any more capacity, the only way to increase production is with new automated machinery, because there are no more people to employ. There are no employment agencies in Japan where you can find people to work in plants. In the United States, on the other hand, there are seven million unemployed, maybe half of whom are actually able and willing to work, and are good workers.

Back in the 1950s, you made a prophetic statement when you told the Japanese that if they pursued this quality-first approach. Japan would dominate the world market and everyone, including the United States, would demand protection from Japanese imports. Did you make that prediction because you were convinced that American industries were not pursuing the proper course of action in this field?

No, I saw, through the conferences with the top management in Japan, that Japan

could do a better job with quality control that America had ever done. Americans had not done well with quality control because they thought of' it as a ha of techniques. As a group, management in America never knew anything about quality control. What you had in America, from the intensive statistical courses I started at Stanford University were brilliant fires and applications all over the country. But when a person changed jobs, the fire burned out and there was nobody in management to keep it going.
We held the first course at Stanford in July 1942, and seventeen people came.
Two months later. Stanford University gave another course, and later other Universities gave courses. I taught twenty-three of them myself. By that time, they would be attended by fifty or sixty or seventy people. De War department also gave courses at defense suppliers factories. Quality control became a big fire. As a matter of fact, courses were given to a total of ten thousand people from eight hundred companies, but nothing happened.
Brilliant applications burned, sputtered, fizzled, and died our. What people did was solve individual problems; they lid not create a structure at the management level to carry out their obligations. There was not sufficient appreciation at the management level to spread the methods to other parts of the company.
The man who saw these things first was Dr. Holbrook working at Stanford. He knew the job that management must carry out. He saw it first. We tried, but our efforts were feeble, and the results were zero. We did not know how to do it. In our eight-day courses, we would ask companies to send their top people, but to people did not come. Some came for one afternoon. You don't learn this in one afternoon. So quality control died out in America.

Let me put it this way: more and more, quality control in America became merely statistical methods—the more applications, the better. Instead of finding many problems, we need to find the big problem. Where are the problems? Let's find the big problems first. What methods will help? Maybe no methods will help. Let's be careful – so many things that happen are just carelessness. We don't need control charts for them. We just need some action from management to cut that carelessness. Wrong design? That's managements fault. Recall of automobiles? Management's fault, not the workers' fault.
People started control charts everywhere. The Ford Company had charts all over their assembly plants across the country, one chart on top of another. Quality control "experts" sat and made more and more charts. One man told me his job was to count the number of points out of control every day. But what happened was nothing. Quality control drifted into so—called quality control departments that made charts. They would look at the charts and perhaps tell somebody if something saw out of control. The only people who could do anything never saw the charts and never learned anything. That included everybody. Top management never heard or learned anything people on the production lines did not learn anything. That was totally wrong, because the first step is for management to take on my fourteen Points, namely, to gain purpose. The Japanese had already accomplished this task. The Japanese had already to work on training. JUSE was ready. But in 1950, quality control had practically died out in America. When I went co Japan o 1950 I said to myself, "Why repeat in Japan the *m*istakes that were made to America? I must get hold of top management and explain to them what their job is, because unless they do their part, these wonderful engineers will accomplish nothing. They will make business applications and them the fire will burn out."
It was at that time I was fortunate enough to meet Mr. Ichiro lshikawa, who, after

three conferences, seat telegrams to forty-five men in top management telling them to come and hear me. Well, I did a very pour job, but I explained what management must do, what quality control is from a management standpoint. For example, I told them to improve incoming materials, which means working with vendors as if they were members of your family, and teaching them. I told them they must learn statistical control of quality. It's a big job.

Incoming materials were wretched, deplorable, and nobody seemed to care. They just thought that industry consisted of taking what you got and doing the best you could. But I explained that that won't do because now you must compete. The consumer you never thought of—to whom you must export—is in America, Canada, and Europe. lmprove agriculture, yes, but the better way—the quicker way, the most effective way—is to export quality. They thought it could not be done. They said they had never done it, that they had a bad reputation. I told them, you can do it—you have to do it, you must. You must learn statistical methods. These methods of quality control must he a part of everybody's job.

Ac that time, consumer research was unknown in Japan, but the aim of making products was co help somebody. I think they had never thought of the consumer as the most important end of the production line. I told them they must study the needs of the consumer. They must look ahead one year, three years, eight years, to be ahead in new services and new products. As they learned, they must teach everyone else. Well, that was the natural Japanese way. I did how know how much, but I gave them that advice.

How did you develop your own views, not only of statistical control methods, but also your central message that quality determines productivity?

By simple arithmetic. If you have material coming in that is difficult to use –and there was plenty of it coming to Japan in 1950- you will produce a lot of wasted human effort, machine time, and materials. There will be a lot of rework, with people occupying time trying to overcome the deficiencies of defective incoming material. So if you have better material coming in, you eliminate waste; production, quality, and productivity go up; costs go down; and your market position is improved.

Well I think that I have put some principles on paper that everybody knew but that, in a sense, nobody knew. They had never been put down on paper. I stated those principles in Japan in the summer of 1950, some for the first time. They're obvious, perhaps, as Newton's laws of motion are obvious. But like Newton's laws, they're not obvious to everyone.

Is there a company in the United States that has heeded your message? Are there some isolated cases?

The Nashua Corporation in Nashua, New Hampshire, under the direction of its former president, William E. Conway, was off to a good start. Mr. Conway himself was doing a great deal, not only for his corporation, but for American industry. Almost every day, visiting teams of ten to fifteen people from other companies came to Mr. Conway's offices plants to hear about what he was doing. He was getting a very good start. The entire company was meant for quality.

Why is he so different from other American managers?

I don't know. There are other good companies. Some of them have started lately and they're pushing along. One of the great problems is finding competent statistical consultants. There are very few that can give competent training. One company I work with must train fifty thousand people to discovery problems. How long do you think take the purchasing department to learn to take quality into consideration along with price? It will take five years or more, and at going to take a long time. There is no quick road.

DISCUSSION QUESTIONS

a. Dr, Deming seems to put more emphasis on corporate culture than on quality control methodology. What is necessary to change a corporate culture to be as quality conscious as Deming feels is necessary to compete in global markets?
b. What are the relationships between quality and productivity.
c. If automation continues to be installed in both Japanese and U.S. industry, will the quality problem be solved by technology?
d. What are the future prospects for making the quality of U.S. manufactures products competitive? How can such a goal be achieved, given the current Japanese lead?.

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