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Interview with Noriaki Kano

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Noriaki Kano

Interviewed 28 August 1991, Wilton, Connecticut

Video Reels#

Q: *How should your name appear? Spelling?*

KANO: N-O-R-I-A-K-I K-A-N-O.

Q: *Noriaki Kano.*

KANO: Very right, very correct.

Q: *Is there a title or an affiliation that we should have as well?*

KANO: Yes. Yes, usually people call me that -- doctor.

Q: *You have in your lap -- ?*

KANO: Yes.

Q: *-- a big piece of cloth.*

KANO: Uhm.

Q: *What is that?*

KANO: Oh, this is Juran -- we call it the Juran Flag. And 1966, ... came to Japan. First he was exposed to QC Circle. And then he looked to be very so much impressed. And we had -- ah -- QC Circle conference, by the counter-chapter. We have the organization of the -- nationwide organization.

And one of the chapter, biggest chapter, the counter-chapter. And in those -- we -- we had a special conference, presentation conference, for him. And -- ah -- he attended the conference, listened to the presentations, and he was a very -- he seemed to be very impressed.

And-then -- and then he described -- ah -- he -- he left signature ... can believe it or not. He say that the QC Circle -- come to brunch. April 20, 1966. Ah -- ... his signature, and he say that that QC Circle concept is and on the road to the quality leadership.

So -- so since then, this counter-branch thought this as a treasure. And then as a symbol of the activities. And then we made it to add with the "Q" mark, and we call it Juran Flag.

And then this rug is considered the symbol of branch-so that the -- you see, this activity that ... activity, every year we have the coordinating company. And they also that the chief coordinator, usually top management of that company.

And then every -- at the beginning -- at the end of a year, we hand this flag to the next coordinator. And then the place where this flag exist is called ... the place of the headquarters.

And then now that the counter-chapter has -- how many -- several of regional sub-branches. And then each of them has a copy of this. And they also utilize as the Juran Flag.

So that I want to ... he know that -- Dr. Juran know that, this thing. This ... of this flag, and then this is the ... so important.

Q: It must be a wonderful honor for the person who is able to have that. We have worked with Dr. Juran --

KANO: Yes.

Q: -- for many years.

KANO: Yes.

Q: And so we have a sense of who Dr. Juran is and how is seen here in the United States. How is Dr. Juran regarded in Japan?

KANO: Ah -- well, I think ... you might well know that, after ... go through, I have a very serious situation, particularly we have very big problem in quality. And then best reason we -- and ... import the concept and the techniques of quality control, particularly statistical quality control from the United States.

And at first, we considered that, in order to improve the quality ... that application of statistical techniques. However, his biggest impact is -- his first visit is 1954, I remember. And this is the -- this is the textbook which he used. Of course, this is Japanese translations. Okay.

He conducted -- he conducted a seminar. And in this seminar, according to the literature -- you see, at that time, I was still a child -- a child so that I actually don't know. But, according to literature, his biggest impact is that quality have much more broader concept. Okay.

Not only talk about the defectives ... , or much more broader concept. And also that -- **ah** -- particularly important matter is that it should be handled as a business management. ... in this sense that the people open their eyes very much.

He talk about -- at that time -- first, goes it that most of big impact is done by the introduction of Pareto Diagram. At that time -- first time, he mentioned Pareto Diagram. Next time, he mentioned that -- just vital few.

And now, I don't know why it come back to Pareto Diagram again. But this is the most popular techniques which are utilized in Japan, and we conceded that it -- it should be called a Juran Diagram.

But anyway, he introduced Pareto Diagram and also he also introduced the organi -- organization -- organizational approach, such as steering ... versus diagnostic ... Or so --

I think -- so we understood Dr. Juran as -- among the quality specialists, we understand that Dr. Juran is a person who open our eyes, for management, management of quality, from the statistical application to quality.

So, I think that is the usual perception. A man who's a quality specialist. However, if you ask much more wider people, maybe they don't understand this kind of thing. But they understand his smile, his very warm -- ah -- hospitality.

So I think that a general perception of which we have today.

Q: We have learned that there are very few people who work and think about quality at Dr. Juran's level. Here in the United States it's perhaps Dr. Deming. We have been told that you are someone in Japan who has the same kind of philosophy and thinking. From your perception, as a peer of Dr. Juran's, what do you believe have been Dr. Juran's real contributions.

KANO: Yes. So I consider this. He gave this whole wide contributions. So first the conceptual basis, you see, in the area of quality. Maybe before Dr. Juran, many people believed that quality just matter of conformance or nonconformance to specifications.

But he defined quality as fitness for use. And he classified this concept into two categories. First one is quality of conformance and quality with design. I think historical viewpoint, his contribution particular his the insistence of quality of design was very eminent -- I think.

And also, in management viewpoint -- ah -- he introduced the concept of the spiral up. Okay. This is a rather difficult concept. However, by this reason, it did not well understood by the innards.

However, for when -- for example, top management. First they didn't understand this well. However, they challenged the Deming prize one. And then come to certain ... And then

they start to understand this concept is more important. Such as spiral up.

And also he introduced the concept of break-through. This is also very important point. So -- and also management ... that ... very ... states, he -- he talk about importance of the participation.

Today, if I say, participation, everybody accept this is a common ... , but, in 1960, particularly in the Japanese atmosphere, the concept of participation is very, very unique. And also break-through is very much unique.

So -- and in addition, what -- ah -- and also, you see, that my ... to my ... that he, the second visit. I remember 1960. At that time, already he talk about importance of new product development. Okay. It very much fit for that -- fit for the ... of Japan at that time.

You see, after World War II, we mainly import the technology or know-how from U.S. or Europe. And then we are mainly working for the production agents. But in 1960's, we start to develop the new product development.

However, at that time, very few people who -- and ident -- who understand relationship between quality and new product development. So it was very much his lecture gave a lot of interest and curiosity to the people. Those were described in their literature.

So and also, important point is that 1966, when he came to Japan, at that time -- as I mentioned previously -- he was first exposed with -- exposed to QC Circle.

However, according to the explanation of professor who left the article in the journal, first, for him, this concept seemed to be very, very difficult; very difficult to understand. However, repeatedly he visited a company and then to talk with the member of the QC Circle. He -- he ... changed, in changing. Okay.

And then, after -- and then after leaving Japan, he went to the ... QC Conference at Stockholm. And here he introduced this concept to very widely. And then this year, the first time,

which is re -- QC Circle was recognized in the world. Particularly in the West.

And also, after that -- I forgot the exact age -- but he described the very interesting paper which talk about relation with ... assistant and the QC Circle. I think he -- this paper was very much -- this paper provided us very big impact, because before the -- his paper -- ah -- of course we understand the QC Circle important, but we cannot explain this so well, theoretically, in conjunction with -- in relation with organizational theory.

But he explain about what ... is to me, and what is the basement of that. And then how QC Circle is related with this. And then also that, of course, he mention about the restriction of the -- the -- from the beginning, from the early stage, he made mention about the limitation of the result of QC Circle.

It very -- he ... warned to -- he warned the danger if people -- people over-estimate the result of QC Circle. So I think that such kind of his opinion, or his article, very much de -- has been contributed for us to develop the concept of QC Circle.

From the down-put that in 1970, QC Circle Committee published fundamental -- we call it QC Circle Call You, it is the fundamentals of QC Circle. When -- in the process to establish this kind of basic concept, I think that Dr. Juran -- people want a lot of people learn lot from the papers of Dr. Juran.

And also another thing which we cannot forget is that his contribution to the service industries. So in 1970's, our manufacturing industry has become very much a developing and, however, at that time, still people consider that quality activities -- quality control -- is only applicable or only meaningful in the service -- no, sorry -- manufacturing industry.

However, 1974, I remember, he came to Japan, and then he conducted symposium for service industry. I think the timing was too early. So the response of the Asia people was not so well.

However, I think -- he mentioned that he had never experienced that kind of symposium. Also, U.S. or Europe. So that it was the first symposium, conference, specializing in the quality in service industry.

(COUGHS, EXCUSES HIMSELF)

So -- and also, so if I point out in this way that there are so many things, but that --

(INTERRUPTION)

KANO: And -- but anyway, from my personal viewpoint, I met him first time 1966 -- from my viewpoint, I met him, but he -- I believe that he didn't identify myself, because, at that time, I was graduate school student. And then I worked as a motor-taker, and had a ...

In 1966, I remember that after Dr. Juran visit, at that time I was a -- yes,

(INTERRUPTION - INSTRUCTIONS)

Q: You've opened up your laptop.

KANO: Yes.

Q: What's on the laptop.

KANO: Oh, you see that -- Dr. Juran did so many things. So when I was invited from Mr. Blackiston, when I come up for my ... , I put it what he did. See, this is here have the list of my memory, what he did. What Dr. Juran did.

And so, for example, I found something forgetting -- forget to say so far.

Now very interesting thing in United States is that many companies are very much interested about the introduction of management by products. Okay. This was the official -- for many started around end of 1960.

However, in 1960, he did seminar. After that, our article. Asked the several participant about feed-back of Dr. Juran seminar. One gentleman mentioned that, in the seminar, he learn about the distinction between objective, policy, and the creed. And then he say that the -- the gentleman say that some difficulty to distinguish them. But now, by the explanation of Dr. Derriing -- Dr. Juran, he understood that.

So, however, now this concept -- and then based on his concept, and other associate, ... policy is developing, has been developed. And now reversely imported to the United States.

So when we introduced the ... of the policy, many company had a difficulty to understand the meaning of policy ... here. So, in this way, I think that I found that it is also great contribution. Today that ... policy is very important factor of our company ... activity, so, in this area, also it will clear that he did a great contribution to that.

And also he talk about the -- also used cost. See, at that tine, the quality cost was very popular. But ... the quality costs only cover the costs inside an industry. But he talk about more important thing is that cost of paid -- cost paid by customer or by the user. Okay. And then he insist about usage cost.

This is also provide impact to him. And also more, ... think ... that today, in our country, overhead projector is very popular. However, I heard that this equipment was the first demonstrated by him. He brought overhead projector to Japan.

And also that in ... that, before his visit, we had already developed the quality control basic cost. Okay. This is mainly intended for the engineers or staff. However, after his seminar, we initiated -- his first visit was 1954. So that from 1955, ruSE, Japan Union of Scientist Engineers, develop the management cost.

So it was established in 1954, 5, and it still it has been continued. Very much -- this is very one of the very popular ... And also in this seminar, we had -- also, another thing, also,

we have the group discussion. I think this method is also introduced by Dr. Juran. We didn't have this type of education.

Yes, I think those are major things which he was done.

Q: I would like to ask a personal question.

KANa: Yes, please.

Q: Your life is devoted to quality --

KANa: Uhhm.

Q: -- at this point, much like Dr. Juran has devoted his life to quality. Dr. Juran is older than you are. What effect has Dr. Juran had on you and on what you do with your life.

KANa: Hm, yeah. Ah -- I was the -- I have got severe impact from him. My first impact from him was got in 1966, when I participated in his seminar. The notes take. He talk about that.

Why American railway business decline. From the end of 19th Century to beginning of century, railway business was so prosperous. However, in at -- in the latter part of this century, railway business has declined very much. Why? And he mentioned that the company, railway company defined the activity, not by function but by method.

The railway company defined the activity is just what on the two rails. Forget about the transportation. So if the top management of railway company ... idea, they are not -- to work on the two rails is just a method. They objectively transportation -- passengers or cargo.

If they recognize this, at the 1920 to 1930, at that time, the railroad company have a lot of asset they could invest to the other transportation, majors, like truck transportation or air, airline, or boats, what.

So when -- and then the use of ... with this example, he insist that when we talk about ... very important matter at that, we should only consider about our objective. What is our objective. Okay.

I think it was given me very big impact. ... today. For example, one of my interests today is that -- is to make the structure of quality. Quality is a very wide concept. And, of course, that Dr. Juran gives very much a big contribution in this area. But still it is not ... structures.

So, in this case, when we consider about what quality means, in this case -- when I consider this, I was very influenced his lecture in 1966. So -- and also, well -- Could you give me a few moments?

Q: We were speaking, Dr. Kano, what Dr. Juran, how his life --

KANO: Yes.

Q: -- has affected your life.

KANO: Yes. That right. So the first thing is that I mentioned that his impact about -- to make me think about all that distinction between the -- what is our objective, what is the method. In this sense, I learned from him.

I always -- ■ utilize this concept very much frequently in my research, and also in my (INAUDIBLE) very frequently. And still I utilize this. And also that the second one is that also I was -- ■ got a very big stimulus from him about his concept of vital few, to ... many. Such as prioritization.

The third thing is that he kindly invited me to his office at New York, which plaza? I -- ■ remember it's near the United Nations. United Nations Plaza? 1979. And then we discussed almost half day in his office, very personally.

And then in this timing, we discuss about the future of the United States, or future of Japan. And I was very -- **he**

mentioned that it took ten years to make the -- wake up the top managers of the United States.

At that time, I didn't -- I had a different opinion about that. But ten years later I'm sure that now these several years, it was 1979, and then -- but ten years later means that around '89, if you compare the status of the United States, '89, it's quite different from '79. You have already Malcolm Baldrige National Quality Award and a lot of quality event.

So in this sense that I was very surprised that he -- the appropriateness of the prediction. So when -- today I have been also invited from various countries. In this case that key approach is more or less impact me in this point.

So I think those things are -- personally I was impacted by him. I forgot that, of course, that when I presented a papers. Okay. First time my paper is that comparison of the quality approach between U.S. and -- between the West and Japan. It was presented in the conference of 1978.

He paid attention to this and then in the plenary session, he pointed out -- and then he gave me a lot of encouragement.

And also, since then, when I made the presentations, always he read carefully, and then give me a lot of comments, and also encouragement. I think it has been very, very also help for me. I'm very much -- have very much encouraged by him.

Q: The United States --

KANO: Yes.

Q: The West really woke up to quality.

KANO: Yes.

Q: And started listening to Dr. Juran --

KANO: Yes.

Q: -- really only after Japan --

KANO: Uhhm.

Q: -- passed us in quality in electronics, automobiles.
What would life in Japan -- what would quality in Japan be like, do you think, if Dr. Juran had not visited --

KANO: Hmm.

Q: -- in 1954 --

KANO: Uhhm.

Q: -- or had not published --

KANO: Uhhmm.

Q: -- his quality handbook?

KANa: Uhm. This is very difficult question. Once -- ah -
- yes. A few years ago, when I met him, also personally, in Toronto, we discussed this matter. Dr. Juran insisted that Japan would be successful without his contributions.

This is getting very difficult. But he may be quite right but I think it may be more time. Or we made a lot of -- more -- it's very difficult for us to come to the right way. Okay. Maybe we made a -- we have made a detour. I think.

Q: Dr. Juran spoke to many people in the United States before going to Japan, but not many people listened. Why did the people of Japan listen more carefully to Dr. Juran in 1954.

KANO: Hmrrn. Thank you very much, that is the most interesting topics which I like. Ah -- so -- when -- I started

think about the same questions, see, who after I worked to the ... country. I was dispatched to -- for my first country, which I visited for work, for the quality activity -- for the quality activity that Iran in 1975.

Since then, I visited various countries. But it's not so easy to transfer the concept to those countries. In some countries I visited twice or three time. It was still very difficult. **But--** and then I started to think about that.

Why Dr. Juran first came to -- 1954. Next, '60, and next, '66. And then particularly his reputation has been established by the first two visits. Maybe he may stay one month or so. Okay. And then so totally of two month.

And then he provided a lot of impact. But it was -- but that was a state of situation of Japan. But, I visited one country and several time, but still did not work in that way.

And also of course that my under -- my experience and my understanding was not so broad like Dr. Juran. Dr. Juran's visits -- Dr. Juran's ... I was very far from Dr. Juran and David.

But, for example, that Professor Ishikawa. Also he visited various countries. And -- but very few countries which have absorbed this, why this difference come out.

Of course, first in important ... we cannot forget about the -- how he -- what a splendid knowledge he had and then how excellently he transferred that. But at the same time that we should consider about the strong -- strength of needs for quality.

So recently I frequently am fortified about -- I publish one article which is called the Quality Sweating Theory. Okay. The concept of this is that quality -- any companies, or any kind nations, if we cannot find any nation or any country -- companies, which has been successful -- which has been -- which has succeeded in quality within any sweating job. Always the countries or nations which has been successful in quality, have done a lot of effort by sweating of jobs, sweating job by many people.

So in the theory, I refer to about what is the driving force to make the people sweat for quality. And I -- by the historical ... study. of the successful countries and successful companies, I pointed out two element: one is crisis consciousness.

The second one is leadership of top management. According to my survey, no companies -- no kind of nations has been successful without deed to concept, to element. So, if you look at -- look back upon the -- after our ... -- Japan, after World War II, the status, the government status of our country was so serious.

And then our biggest problem is that first, So if I remind - - at that time I was a child. If I remember about my childhood, all it come out how hungry I was. And then this is not one ... my personal matter. It is very common in Japan at that time.

So in order to get food, okay, we need -- but our land is not so big now to provide sufficient food. So we should import. We need foreign currency. In order to get the foreign currency, we should promote export. But in order to make promote export -- at that time we had no problem about price. We need the price and the quality, but quality.

At that time we had no problem about price but a serious problem about quality. So in this case, we deceive -- we understand in the distance we're quite control, and which were the implement in the U.S. industry doing World War II. And then after that, also we recommend -- we recommended by the GHQ, General Headquarters of the Allied Force. And also we had Dr. Deming's and Dr. Juran.

So we -- our condition is very much we have a strong crisis consciousness. So we have to -- if it is useful to quality, we have to do everything.

So in this way -- how do you call that, this thing we don't use, but in the past, we use, how you describe pen, and - sometimes that pen -- in order to make dry ...

Q: *We began to run out of tape.*

KANO: Okay. Okay?

Q: *Yes.*

KANO: So -- ah -- the status of the people is that something similar with the blotter for ink. ... sold everything. We wait 'til we ...

In that timing, Dr. Juran came. I think -- so the distance of big crisis consciousness, and also -- also we have a very good leader, like Professor Ishikawa, or Professor Mizino, or Professor Sako, or Professor Kuradi.

Those people more quickly are ... knowledge, or concept -- thinking of ... from Dr. Juran. And then sometime that what Dr. Juran Institute said is very difficult to be implement because our culture is different from United States. And also our de -- industrial development status so -- is different.

So they translate what Dr. Juran taught. And then also they add something from their -- based on the one Dr. Juran Institute concept, they add something, which is unique to Japan. And then develop.

So I think this makes difference. So that many countries -- so there we have many countries that are still the inevitable crisis not so serious. This is one.

The second is that we don't have -- some time we cannot find the good leaders who are very much -- how do you call that -- strong education consciousness. Try to sacrifice himself to develop their own -- develop their own countries.

I think we have these kind two conditions. And then we have Dr. Juran. I think this makes these three parameters, work very effective. I think this is case of Japan, I think.

Q: *When I was young --*

KANO: Yes.

Q: -- *if on a product it said made in Japan* --

KANO: Yes.

Q: -- *it meant terrible.*

KANO: Yes.

Q: *Poor quality* --

KANO: Yes.

Q: -- *and now* --

KANO: Yes.

Q: -- *I buy cars* --

KANO: Yes.

Q: -- *television sets* --

KANO: Yes.

Q: -- *and cameras* --

KANO: Yes.

Q: -- *and look for products made in Japan.*

KANO: Yes.

Q: *What made the difference? From terrible* --

KANO: Uhhm.

Q: -- *to wonderful?*

KANa: Yeah. But do you know that -- what do you mean by made in Germany, originally?

Q: *Nothing.*

KANa: You see that in 1896, one British scholar published a book, the title is Made in Germany. Okay? ... I have heard that. In the middle of 19th Century, Germany had a very serious problem about quality. And also at that time that they were very behind industrialization.

And a lot of people went to U.K. to study. And then bring -- bring back. Ah -- but -- and then they started their production in their own country.

When the Germany starts the productions, and then U.K. receives the various kind of complaint from users. And then - - and then the British industry made the investigation. They found that they are not made in U.K. but made in Germany.

So in order to distinguish their product from made in -- no -- in order to distinguish the made -- the made in Germany product from made in U.K., they applied pressure German industry to put the label that is made in Germany. And this is initial of -- initiation of the labeling system. So that made in Germany, first, means that poor quality. Okay?

However, at end of 90 -- 19th Century, the German people did a great effort, then quality was very developed. And professor, economic professor of Britain, British professor, made ... about the penetration of German product to the British economy.

And then, if we say, made in Germany, immediate many people believe that it's a very shoddy product. But it's not true today. Okay?

So so much -- you must look up. Textile, steel-- he checked that by product by product. Okay. And then how

much increase of the -- penetration of the German product. So made in Germany is no more poor quality, but good quality. Okay.

So that -- so, from this story, you see Japan -- the success of Japan is not unique. Before Japan, I think that Germany did great contribution. I think the reason why -- from if I say that exaggerate -- my hypothesis, why Germany succeeded in quality, because their quality was so poor.

The same thing in Japan. And also that I am most interested about why quality control was born in the United States, around 1930.

My hypothesis is that -- my understanding about the contribution of United States for industrialization is that introduction of the mass production with the use of the -- with use of the unskilled workers is different from the European approach. European approach is that they achieve the industry by the skilled workers. Okay.

For this purpose that in case of Germany, they developed the apprentices. Okay. There were meister ... , meister system. Okay. U.S., they have -- you have a huge island, very big land. Most of them underdeveloped. Most of them undeveloped. At the beginning of this century.

For you, the most important matter is that to increase the production. Otherwise you must increase the transportation equipment, you must increase the industrial -- machine, the agricultural, machines, so on.

But if you follow approach of European approach, it took so long time. How to shorten. And then I believe that the Taylor (?), F. W. Taylor, introduced the new system, which is called Taylor System, and then based on the lines and staff system. And then initiated mass production system. And that was the beginning of this century.

However, now that -- I believe that even though he ... this matter, it took a time to be disseminated. So 1920, 1930, it has been disseminated to some extent. But the problem of this approach is that of quality.

So, and then, their telephone novelty (7) started this kind of activity. At that time, I had not checked the statistic, but my estimation is that if you check the dissemination of telephone, telephone in the family, I believe '20 or '30 you have a very remarkable increase. And then I believe that your telephone company had a lot of problem about quality. How to solve this situation.

I think this made some to study about quality. And then they found the method in U.K. which was -- which was advocated by the Ronald Arthur Fisher. And then their approach is that -- ■ mean the application to the agricultural. But what Schuhar (?) did was -- what Dr. Schuhar did was convert the application to agricultural area, to industrial.

So that I think that also, if you study about the history of quality in United States, particularly compared with around something, '20 or '30, particularly the product, if you talk about a product quality, I believe that, at that time, a lot of problem you had.

And then this made -- this made the -- this is the reason why you bought, you made, you can generate, you can add to the quality control. And then it has been -- and then, after all that -- and the other result you have got such a result in quality.

So my point of view then, people very much surprised that, in the past so bad, and now become very good.

But in the area of quality usually you see it's very difficult to find a company or ... country. In the past, to some extent good, and then today, it become very good. It ... also made such case. Usually very bad. That's reason people who feel the necessity of break-through. And then to convert very successful.

For example, recently -- ■ believe you are familiar about the development of quality in -- by Taiwan or by Korea, very remarkable. Okay. Twenty years ago, or let's say, 15 years ago, we had a similar thinking -- similar perception which you had about -- which you had before you had for Japanese ...

If it said made in Korea or made in Taiwan, oh, very shoddy product. But today, they have been very much developed.

Q: You have talked about Dr. Juran and Dr. Deming. Both me, I went to Japan in the 1950's. To this day, I'm confused: who did what?

KANO: Ah -- in this sense that we -- you see, this kind of -- no. Wait a moment.

Q: What did Dr. Deming do?

KANO: Yes, I understand, yes. Okay. May I? Okay. When we talk about quality development. If we talk about success of quality, it's very difficult to allocate -- allocate -- no. It's very difficult to say that this part come from Dr. Deming or Dr. Juran's ... Because it's a kind of the integrated -- integrated job.

So I think that contribution of Dr. Deming is very ... important. Also contribution of Dr. Juran. And also we cannot forget about contribution of our excellent Paretos, like Professor Ishikawa or Mizano or Professor Sakaswan. Okay? And those we cannot forget about the serious existence of managers, many quality specialist want.

So it's a kind of -- it's very ... of our success is kind of -- a kind of such integrated effort of all those people. So in this sense that I can say that contribution of Dr. Deming is very great, and also that the dedication of Dr. Juran is also very great.

But only by their -- if we can see that we have only -- by the visit of Dr. Deming or Dr. Juran, I think we cannot succeeded. It's integrated. But if I say, in sense of element of activities, Dr. Deming introduced us -- anyway taught us that how to apply the statistical techniques in work place.

We had many statistical, mathematical statisticians. And also we understood that mathematical statistics. But his approach, it was very easy way. And then very practical way. How to apply statistical techniques, we learn in this point. And also we learned a lot about control chart.

I think -- and also we understand -- we learn about from him about what management means.

So I think those things are very much important base of today's ... activities. And from Dr. Juran, as I may previously have mentioned, we have learned --

As previously mentioned, we learn about the --

Q: Would you start it one more time.

KANO: Yes, okay.

Q: If you would also not say previously --

KANO: Okay.

Q: -- what did you get from Dr. Juran.

KANO: Oh, so in this case, may I repeat the sentence here in the previous.

Q: We've already got the Deming story.

KANO: Okay.

Q: But if you would say --

(INTERRUPTION)

KANO: From Dr. Deming, we learn about Pareto Diagram, or we learn about the importance of management aspect, various techniques. Those are his major contribution.

Q: *Those for Dr. Juran?*

KANO: Dr. Juran, yes.

Q: *I believe you said Dr. Deming.*

KANO: Dr. Deming is that we learn about the appli -- how to apply the statistical technique, in ... improving in the quality in work place. So practical approach.

Before his visit, it's very difficult for us -- we were very much difficulty -- we understand that statistical ... , but we do not understand how to apply this kind of techniques in practical way. And also he taught us that how to teach the engineers statistical techniques. That is also Dr. Deming's contribution.

So Dr. Deming his major, many contribute to the statistical ... Dr. Juran's contribution is that based on his -- based on Dr. Juran's, Dr. Deming's teaching, he gave us much more wider aspect, as management aspect, of quality. So by the combination of Dr. Deming and Dr. Juran -- okay -- we developed company-wide concept, quality concept.

Q: *Today, in Japan, there is a Deming Prize.*

KANO: Yes.

Q: *But there is no Juran Prize.*

KANO: Ah -- yes. We discussed about that. At -- when. Around '90 -- in the -- something in the beginning of 1980's, when some industry tried to -- in Deming Prize committee, we discuss about that. But -- so particularly we consider to establish the Juran Prize for ... industries. Because he introduced this concept to Japan.

So -- but, you see, in order to establish a prize, we need something -- the combination of the various "" so that before establishing that prize -- in already service industry apply for Deming Prize, so that they're disappearing.

But this does not mean that we think much better -- this does not, you see, that, yes, you're right, we have Deming Prize, we have Dr. Juran. We don't have Juran Prize. But it does not mean that we appreciate Dr. Deming more than Dr. Juran. Okay.

We consider that both of the contribution of both persons are very great. But the -- you see -- why do you recent establish the Malcolm Baldrige National Quality Award? Why do you -- do you put the name of Mr. Baldrige -- no, Malcolm Baldrige?

I think that, of course, he insisted very much about the trade of -- importance of the free trade. But I believe that you have -- he is not only one guy to mention this. See -- but you need the award -- you see, National Quality Award. Many people understood the necessity of that.

At that time, Mr. Baldrige was died by the kind of accident. This is ... Okay. So in any country, when the award or prize come out, at that time they have some need. For example, in case with Japan, you see, first we received the visit of Dr. Deming. And then -- first in '49, I remember.

And then, and then we established the --

(INTERRUPTION)

Q: About what Dr. Juran did.

KANO: Yes.

Q: So at least people who see this now will say, oh; that's what he did.

KANO: Yes.

Q: I don't want to take anything away --

KANO: Yes. But in this case that -- at the beginning of this session, you asked me that what he did. And then I mentioned that. So that I think -- was it not --

Q: As we talk now --

KANa: Yes.

Q: If you could maybe -- I'm looking for something shorter.

KANa: Uh huh. Okay. In this case that, you see, only if I -- he did very ... But if I put in to sum up, I can say that he ... , he taught us the importance of management aspect of quality. I thinkread the summary of that.

And then inin some other component of this concept, this idea, we have the Pareto Diagram, or design of quality -- design of quality controllments. Design of quality of controllments, or various items we have.

Q: We are hoping that this program we are making --

KANa: Uh hID, yes.

Q: -- for television will be seen on American television.

KANa: Yes.

Q: Why do you think people in America, who really don't know much about quality, certainly as an engineer, could have any interest in someone like Dr. Juran. What has Dr. Juran done in his life that people in America should care about?

KANO: I think a very important matter is that people in U.S. must understand basic idea of Pareto Diagram. Today, many American companies, ... promoting quality activities. And then company-wide activities. That is very wonderful. However, if we look -- we check very carefully, the application of technique very superficial.

For example, the Pareto Diagram: many people prepare the Pareto Diagram, many of them adhere within. I ask them: what did you do by this Pareto Diagram? What kind of decision did you make? How prioritized your activity?

And they didn't make any decision based on Pareto. Just you see that here we have ... few, here we have ... few. Just used for the conversation. So in this trip, I visit various American companies and also I visit to Brazil. And then I felt that this pointed most ... here, today.

So by Sweden that relative effort was made for educational training. And then they found a lot of problems. Okay. However, they are not as activity, not prioritized. **Many**-- one person go this way, another person go this way. Each problem very important, should be solved.

However, our resource is limited. In this case that if the people go by their own way. without prioritization by top management. Okay. Investment -- resources -- you need a lot of investment, but to develop that did not come out.

So I think that the most important thing for American people today then must understand concept of trivial many -- trivial -- sorry -- vital few. And to make decision, based on this, and then to develop the activity based on this -- for the prioritized item. I think that this is very important point.

And also that the second point is that he -- he taught us the importance of the -- policy setting, and also the importance of the ... -- in order to realize policy, he taught us the importance of the participation. Okay?

Also this concept also necessary today, I think. So I think that today, lot of activity going on in U.S.~ but as far as I am -- I know that, without the prioritization, I think this is a very

serious flaw. That's the reason that lot of the investment made but the result will ... few.

So that is my message to the American people, which I think they should learn about from Dr. Juran. Pareto Diagram seem to be -- most of the people, if they ... , oh, it's very good, very easy. But actually, they didn't understand the meaning of this.

How difficult to make decision. Okay. Make decision. Pareto Diagram mean that. He insisted that, it really is for usual people. It's very easy to decide what we should do. Okay?

But Dr. Juran, you see, employed that. Also we should decide what we -- what more to do. Okay? He tried to distinguish the -- we should -- we should make the decision to do for the vital few. But we need not work for the trivial many.

For a while, he insist that to forget about the trivial many. And then focus on -- focus on the vital few. Very ... insistence.

But many manager lack to decide to do, but it cannot do to make decision which is not necessary to be done for a while. Okay?

So I think now if American industry understand this much, the ... manager understand this, then they make decisions, and then focus -- and then focus the effort to certain areas, and then this make them -- make the industry very, very successful.

And then more substantially disseminate. So my observation is that today, now that I believe that you know that the activity of Florida Power and Light, they received the Deming Prize.

And I think if I compared with activity of Florida Power and Light, they did it for Deming Prize, I think the activity seem to be a ball for baseball. But the activities which have doubts, the companies which I have visited here, something like ball for volleyball, was some cases that balloon.

Can you understand the difference?

Q: I'm not sure I do. What is the difference?

KANO: You see that the ball for the baseball, if cut down, you can find the content. Okay? But in the volleyball, you cannot -- you have just an inside, just air. Okay? Balloon. Just ... immediately disappear. Okay.

So that the baseball is not so big. The size is small. But they have a substance inside, substance. Okay. Volleyball is -- looks very big, but inside -- and then the surface is rather serious. So even you put the pin, it do not disappear.

However, still inside is empty. Okay? And for balloon, just put the pin -- going out. Okay. So that we observe in the world, we observe the company, which implement ... activities like a ball for baseball. Some cases volleyball. Some go balloon. Okay.

So today, of course, you have the company like baseball. You promote -- they promote .. , activity like baseball. But also that I observe many companies like a volleyball or balloon.

So too materialize, to change volleyball to ball for baseball. Because in this ... you not to reduce the size. Okay. I think in this point's the most important guideline is that ... Pareto Diagram.

Q: In your visits to companies around the world, what do the really excellent companies do regarding quality that all of the other companies who talk about quality aren't doing?

KANO: So -- well-- very difficult question. Could you give me a minute?

(TAPE OFF, THEN ON)

Q: ... around the world, there are companies who have excellent quality. What do the leaders in those companies do differently than the other companies who talk about quality but don 't achieve quality?

KANa: Uhm, yeah. Okay, that a good point, okay. Uhm.

(40 SECOND SPACE ON TAPE)

KANa: Yes, okay?

Q: Sure.

KANa: So -- **ah** -- usually, a very common feature observed in the excellent company in quality is that they have - - they have the strong leadership of top managers. This is the first essential point. And in this point that some top managers just shouted quality, quality. And then they say that we are -- they are participating.

But actually, in ... that how much top managers of value the fact of quality, of their own company. And also try to make the inter-departmental coordination into departmental cross-functional coordination, is one of the most important function of top managers.

I think I can ... this kind of thing, one thing. And the second thing is that they're implementing activities by scientific .approach. I mention about scientific approach is that based on data, rather than based on guts. Okay? And also that they try to -- their people are training by the ... think logical way. Okay?

And also that the further element might be that education training. I think -- yes -- and those who ... of course in ... that systematic approach; you see, that each fun -- no, but this is only -- I have ... that in the first cross-function approach is ... that is the in other words, the systematic approach. Okay.

And I think those are major element for the successful company in ... I think.

Q: *You mentioned training --*

KANa: Yes.

Q: *-- as being important.*

KANa: Yes.

Q: *I know for a fact that many companies here in the United States spend a great deal of time and resources training their people.*

KANa: Uhm.

Q: *And yet, they don't achieve outstanding quality.*

KANa: Uhm.

Q: *There must a next step.*

KANa: Yes.

Q: *What do companies do after they train their people --*

KANa: Yeah.

Q: *-- to achieve quality?*

KANa: However, that -- what do you mean by training? Many people -- I think you have a lot of classroom training. But I wonder that -- I wonder whether you have the on-the-job training, or some case study activity, in the actual -- for the actual problem, I think.

I think even though people learn about the basic concept of knowledge, is in the classroom, in order to utilize this kind of technique, they need a coach. Okay? So that in this area, I wonder that what kind of activity you have.

So to develop the -- such an able coach is a very big job. In this sense that -- you see, the in case of golf, see, we can learn the golf by reading a book and also -- I don't know the school, the existence of golf school or not.

But even though we understand theoretically, we need a coach to -- in the actual course of exercise places. They check and then they give us the criticism.

So one of the problem for U.S. is that people like to say: no problem, perfect. Even though they have lot of problem. Okay? And then they don't -- you have not so much today -- you don't have the culture to criticize with each other about their own job. Okay.

People may criticize of some -- some of the outside of the circle. But not criticize about their own job. So -- and then it's very difficult to develop. But you have this kind of activity in area of sports. Okay. That each coach is very frankly give the critic. Okay.

This kind of thing is very -- I think that's such a point. But in Japan that -- in excellent companies in Japan, we have this custom so that the managers give the critic very seriously about the job to the job ... subordinate.

Q: Are there other differences between quality management in Japan and quality management here in the United States?

KANO: Ah -- I think -- so far, our country has been more crisis than U.S. So that we worked very hard in these areas. But today its status of each different. Some time that I felt that more enthusiasm in United States rather than Japan.

So in this viewpoint that, unfortunately, I am -- I must say that I am very much -- well, anxious about that. Our activity is going to be slowed down. Because lack of crisis.

But in your case that many people now understand that -- start to understand that necessity to enhance the quality and also productivity. So and then many people have the crisis consciousness for that. So now that in this sense that maybe if you talk about today's, U.S. is going up, Japan is declining.

So in this sense that I have also different opinion with Dr. Juran in this point.

Q: I believe that between the Lexus and the Infinity --

KANO: But why don't you think about that. You see that what happened in 1950 to the 1960's. At that time, if we observe the American product, we could see that that, well, this is made in America. What excellent product here. How can we catch up with that. Okay?

Why such a country is -- of course, is not actually declining, but in relative viewpoint. There is in relative viewpoint that let me -- may I say that America, U.S. quality is declining in 1970. And you took the leadership '50's, '60's. Why is it declined? How do you explain -- explain this? Okay?

I think it's come from -- I, of course -- there are -- it should be studied more scientifically. But my observation is that major big reason is come from that complacency. Any culture -- any civilization, when it come to mature, people become complacency. Complacency in any for quality, and any for the industrialization.

And then people start to sleeping. And if we study about world history, this is true. For example that nobody believed that Arabic country was the most prosperous country in the world from Seventh Century to the 11 th or 12th Century. Most prosperous, most civilized country in the world at that time.

Q: *Let me test that theory.*

KANO: Yes.

Q: *If we say that you believe that Japan is heading -- has become, as you say, down, while the United States goes up, don't companies in Japan plan quality improvement into their long-term business plans and strategies?*

KANO: They do -- don't -- ?

Q: *Japanese management--*

KANO: Yes.

Q: *-- Japanese companies=*

KANO: Yes.

Q: *-- put quality into their business plans and strategies so that they cannot become complacent?*

KANO: Ah -- you see that I can ask the same question. I believe that in 1950's or '60's, no American company denied a quality. Every company say that quality is important. You see -- in strategy. Okay. We have the published policy -- policy book or so on. Okay.

But in order to materialize the content, we need the more -- more kind of passion is necessary. Okay. In order -- you see, in order achieve the quality, already we encounter with the difficult. In this case, here is our personal life, compared with this, we are always fighting with each other.

And when we had a crisis, in this situation, this is necessary -- this is for our survival. But when the crisis going out, we

act -- well, we enjoy the recreation, we act the family life, so on, everybody.

And then also that when we achieve certain endeavor -- okay -- when we compared absolute ... 00 okay -- some time that, oh, nobody can -- it's very difficult to for the other country or the company to be catch up with us.

I believe that you have the Aesop Fables. Fable? Aesop?

Q: *Aesop's Fables.*

KANO: Fables. Rabbit and tortoise. Okay? So is something people become the rabbit; start to sleep. I think that is the case. So that you see that printing on the strategy on the paper, that noted shared activities.

If you check the company in this point, you cannot find any different -- successful company or different company. Many companies say: we have this kind of strategy, we have this kind of document. Our most important of quality. But this company -- this company failed. This company's successful. What is difference? Actual activity.

Q: *Aren't there things about companies in the United States, uniquely about the United States, that either help them succeed or somehow prevent them from succeeding? Either through personality, or structure, or leadership, or organization.*

KANO: Uhm, I cannot touch the point. Would say again?

Q: *Companies in the United States --*

KANO: Yes.

Q: *-- uniquely --*

KANO: Yes.

Q: -- *things about them that either help them succeed --*

KANO: Uhm.

Q: -- *or make them not succeed, hold them back, inhibit their potential.*

KANO: You would like to know some, which element is to make the company successful, which element work for the interfere the development. That is your point, I see.

Well, I think that either for that, let me say that motivator, motivator and prohibitor, or may I say that. Either motivator, good news is that many top managers now started to -- started to interest and then to start to take a leadership in these areas.

For example, first time when I came here in United States, 1977, it's very difficult for me to find vice president who in charge of -- who are in charge of quality. But today, particularly these several years, you increase a lot of vice president who in charge of the quality.

I think this is one of the data -- one of the fact, how top management increase their interest about quality. Okay? And then this is one of the good news, so this would become very strong. And also that you have your activity based on the very heterogeneous society, multi-racial countries.

So it mean that you can get more creative ideas than from homogeneous. If you peoples try to think in the similar way, we cannot get any creative ideas; So in this sense that in the quality creation viewpoint, I think it's a very -- it works as a motivator.

As a factor which interferes -- which prevent the development is that I think a most important matter is that people are so much -- too much care about losing face. So that for mutual conversations about -- among the colleagues, one guy understand that this problem come from his mistake.

Okay? But he say: oh, no problem. You have done good job.
Okay?

This -- how to -- how to make the people discuss more frankly about their own jobs, both success and failure. Without this, I think that maybe no problem, so the ... time, no problem? perfect, excellent, you have done good job. Maybe this may be -- I like this ...

But if too much used in the -- in -- in usual life, okay, but in the business, in the problem-solving area, even though people working for problem solving, if people work by this way, very difficult to access true cause.

Q: We hear, in the United States, that Japanese managers have a much longer view of business.

KANO: Hmm.

Q: And that American managers manage quarter to quarter, three months, three months, three months. Profit driven, shareholder driven, and that frequently becomes first in their minds over quality. What has been your experience in long-term thinking in Japan, put in the years that takes, compared to American managers?

KANO: Ah -- so you are telling about, I believe, that under the name of manager, you talk of many of the senior manager, top manager, right?

Q: Long term and short term.

KANO: Ah -- well, I think -- if you say today, yes, to some extent, yes. But five years ago, no. Okay? So that it is not intrinsic item, not intrinsic with us. It is always changing. Today the American, today Japanese. Is different from past American, past Japanese.

So if we mention about today, our business people very much think about the financial result of this year. But not think about the quarterly. So serious back here.

So, but anyway, for them is that the most important matter is that, this year. But and then they try to improve the situation of this year. But they found that they are very much important, they cannot do work well. They cannot achieve many things this year.

If they want their -- they have the greedy ambition. Activity only by this year. Is very limited. In order to achieve the ambition, they start to understand that -- first they start from only this year. But they understand that is possibly impossible for the only this year. We need activity for next necessary.

It makes this way. So in U.S.~ there is a status in Japan, but in U.S.~ that -- so -- I think you are not -- senior management has not been -- has not been well trained -- they are not trained to think about the -- sorry.

I think in this sense that in U.S. that the management by objective is a kind one of the hindrance. My point is that in management objective, maybe talk about the figure, result. Okay? But not so much talk about how to -- the method. How to realize this. Okay?

So -- so by this reason that it -- management by objective does make the manager think about long-range viewpoint. You see. If people start to think of -- first set up the objective, target.

And then -- and then if they start to think of how to realize, they pick up the several ideas. And then now think about how -- about what time span is necessary for each objective. They found out they have -- they need -- it is very difficult -- it is very few which can be done within one year. ... to be done over two years, or three years. Okay.

So I think that in -- you see~ we started our activity in the production area. And then we have the specification image. This is something like a target. And also we ... about most --

first, going to introduce quality control from United States, most difficult concept is that pro-system derivation (?). Okay?

Pro-system derivation mean that, in the past, we have just the specification image. And then -- and the next -- only we try to achieve by the -- next important matter the ... Okay? Let's try. Achieve that. Okay?

That is our traditional approach. But, we learn from U.S. that importance of pro-system derivation (?) it mean that when we have the specification image of product, product specification, in order -- before we start a production, we should specify the method procedures to achieve this target. Okay?

This is our basement of management. This idea first only applicable in the work -- in the manufacturing area. But today it is expanded to company wide and those top management strategy. So when the company president set out the target, immediately -- and the target and delivery and to where. We start to think about the method.

And then to think about -- and then we try to achieve them just one year. And then we found that, however, you find that the activity which can do, which can complete with one year is very limited.

And then we -- we have understand necessity of two years or three years. But, and also if we want to get the good result three years later, we should start activity this year.

So I think -- so that my point is that the difference with American managers, senior managers and Japanese senior managers is not that -- not belong -- come from any ... or national background. Only difference is that -- ah -- you know, we have been trained like this, but here not so much in that way.

and then one of the immediate reasons that here the MEO not so much thrifty insist about this matter. So I think that maybe the important thing is that how to improve the MEO. And then if they have -- they understand the more process

orientation. And then process orientation maybe it may change.

Of course, I know that recently many American people understand the importance of process. And then also this is -- we have another problem. We can find our problem. It's a kind of pendulum.

You see, in the past, that people talk about only result. Now people talk about process, but forget about the result. Okay?

Of course, that for every industry, very important matter is that the result. This is no question. No company can survive without profit or ... This is very important point.

But in order to -- to get the good business result, even though just we talk about the accounting report. It did -- of course, it gives us -- it ... us the area, macro area, in which we should work ... we should emphasize more cost reduction, or we should emphasize more sales increase of ...

Those kind of information could obtained from financial report. But next step: we know that reduced cost, what we should do. Okay? After that we need a process concept. So the linkage of process and result, this is a very, very important point.

And then ... from Dr. Deming and Dr. Juran. So totally the difference is that. You have this kind of idea. But you didn't implement it. ... not -- just too much ...

You know, you're insufficient implement. We are a little bit better implementing this.

Q: So *what has proven to be of the two things that you said: a more powerful motivator, reduction in cost --*

KANO: Uhhm.

Q: *-- or increase in sales.*

KANO: Uh hm. What you're point ... ?

Q: As a motivator=

KANO: Yes.

Q: --for a company --

KANO: Yes.

Q: -- what is more powerful, reduce cost, increase sales?

KANO: Ohm. I cannot say in that sense. But if you change the question like this, I could ... that. We have the two strategy very conflict with each other. One strategy that's profit oriented. They other -- profitability oriented. The other concept is growth oriented. Does it make sense?

I think in this viewpoint that we can find some contrast between American -- and general --

(INTERRUPTION)

Q: You were starting to talk about profitability --

KANO: Uhm, yes, yes. To sum up, the observation. U.S more profitability orientation, or profit orientation. In Japan, more growth orientation. Both have demerit and merit.

In case of the U.S., in one company, you see. They are -- that is multi-national company. And they make a cost analysis, and so on. They found that, so far, it was reduced in U.S. But here that -- the (INAUDIBLE). And then here they have a cost expense .

. So they decided to transfer to the Southeast Asia. Okay? This is -- and then if they go -- if they transfer to this one, they can -- they consider that it is more -- it contributes more for the profit. Okay?

But they lost revenue. Because they get some royalty from the Southeast Asia. But they lost -- they lost the revenue at the same time they reduced the -- they lost their employment. Okay?

So in this sense that -- but at the same time that -- of course, the profit is very important, so in this sense, such a profitability consciousness makes industry more healthful from the accounting viewpoint, I think.

However, in Japan that some time that -- you see, they think the profitability as a total. Now big company have usually several product run. Okay? While a lot of them very, very profitable. The other one is a very small, very not so much contributed to profitability. But they keep it all of them. Okay?

And then sometimes that -- and then they sell this product to Europe, or United States, or Asia. Okay. And then in Europe or Asia ... , they're the one company. They only handle this end. Okay. They don't have other products running.

In Japan -- in the Japanese companies, this weak product line very much supported by the other area. So totally they are profitable. But if only consider about this month, then doesn't make any money.

And then this is compete with the Asian countries, with the European company. And then sometime that they -- they are very unhappy for that. So in this sense that very important matter is that we should increase -- increase more profitability consciousness by product group, Product group by product group.

But this also -- but however, that is demerit of Japanese system. But the merit side is that we try to keep more emphasis about the growth. Okay. It means that it works for the good for the job securities, and also to keep the international trade balance.

So I think an important matter for U.S. is that more of -- people try to think about more importance of such ... From our side, that we should think about more profitability.

So all way I feel that if we make a country business in the middle of ... , it's very much interesting point, I think. Because I can observe various such kind of contrast. For example, the quality approach, particularly new product development. I see that the U.S. approach is the genius approach. Our approach is systematic approach.

But for the actual successful product development, very important matter is two factors: the systematic approach plus genius approach. So maybe, why don't we make a country in the middle Pacific Ocean and then we make a company, maybe, to be very, very successful. That is my always -- that is my dream.

Q: As someone who has studied companies and quality in America, and companies and quality in Japan, what have the Japanese learned from America's mistakes, so that Japan doesn't make the same mistakes as America?

KANO: But you must know that first we learned many things from U.S. Okay? Today Japanese system is compete difference from traditional Japanese system. Today our system, we call it Japanese system, but actually that it is mixed blooded. Okay?

So -- maybe in if -- but today, if from my viewpoint that -- my personal viewpoint that if I say that most interesting point for me is that what happened from the end of -- in the end of '60's to the beginning of 70's. Because as I mentioned -- oh -- okay.

My viewpoint is that now that Japan come to some -- prosperity. Okay. According to the history, all the profit of countries going down. So we cannot change this. However, if we look the history, some country elongate to the prosperous time. Some country very short. Okay?

So my point is that how can elongate the prosperity. And my viewpoint is that our economy is very much just 25 or 30 years behind U.S. Okay? U.S. being a success in 1940's, maybe from end of 1930's. Okay? We started the success from 1960's. So U.S. start to decline the 1970's. Okay.

We may start to decline at the beginning of the 21st Century. Okay. So -- but I like -- I'm very big nationalist. I like to keep the prosperity elongated. At least to my retirement age. Okay?

So in this case, I like to learn about what makes U.S. not competitive in beginning of 1970. That is the most interesting point, which is ... from U.S. My point of view. And yes -- and the other point is that this is not the mistake but something different -- difference between both country.

In Japan, for example, that in the airport -- okay -- you have a counter, right? A check-in counter. So suppose that a plane is delayed. Okay? If the passenger ask the -- for example, Japan Airline, or All Nippon Airline -- passenger ask about why, and sometimes the passenger get angry. In this case that person who are working for check-in counter very much apologize for that. That the representative of the company.

But in the West, if the serious thing happened, we ask that. He say that, oh, you are very sorry but -... I'm very sorry but this is not my responsibility; why don't you go to the other guy. So they don't express about such kind of -- representative concept. We have heard that.

But we are not well understand what makes this difference. So I have studied about the difference of education, or family training, so on. But I could not get answer, good answer. Only today I have got this answer is that difference of the ... system. And also the freshman education. But this is not well tested well.

I think those things. Is it ... education? Okay.

Q: I guess, as with all studies, the more we do it, the more we learn. One of the most important things that we have learned about quality improvement, in the last five years, let's say, that no one knew in 1950 or 1960 or 1970 or 1980, what have we learned since 1985?

KANa: You mean that -- would you say again, that I cannot follow you intent, actually intention, yes.

Q: Body of knowledge --

KANa: Yes.

Q: -- increases.

KANa: Yes.

Q: What are the most important things we've learned in the last years, as our body of knowledge has increased, the most important break-throughs of knowledge?

KANO: Hmm. In -- if I talk about -- if you ... question like this: what we created. Something new. New concept in 1980's. In this sense that we ... -- we got -- we created a new concept. That is prevention by prediction. Okay?

When we can talk about actions. Okay. In ... improvement, we should, of course, ... matter of how to plan, how to implement, how to check. And also what kind of action is taken. Okay?

When we consider about actions, it is very much frequently mentioned necessity of recurrence prevention. Okay? In addition to immediate remedy or correction.

However, those are very much well fixed and well widely disseminated concepts. However, 1980's, many Japanese companies feel those two concept insufficient to break through the such a new trend.

For example that life cycle of the product becomes so short, so if the problem occurred and then you fix, you work for the recurrence prevention. Even though you are successful -- okay -- the time is so short, and then the result will come -- the result is very small.

So important matter is that not to happen, not to make any defect happen. So and then for this area that we have developed very much the concept of -- and method for prevention by prediction. I think that this is very, very big contribution in 1980's.

That is my prospective.

Q: I would like to take you back to your relationship with Dr. Juran.

KANa: Yes.

Q: When you think about, as a colleague --

KANa: Yes. Not a colleague, he is always superior.

Q: Tell us about -- people take pictures in their mind, what is the nicest picture that you always have in your mind, a moment when you think about Dr. Juran? What pictures do you have?

KANa: Ah, yes -- first, he is very much a gentleman, and second, he is very much a carefully to listen to the voice of anybody's, and next he's a person who give us -- always try to find some merit of the activities. Merit of the papers or activities, research, or so on. And he try to find merit. Okay? When we have two kind of person, first person, one category of people always try to find demerit. Okay? But the other person try to find the merit. Okay?

So he try to find the merit. And then also to give us that very fair critique. I felt like this.

Q: I know that you have visited with him at his home.

KANO: Yes.

Q: And you've spent other times with him.

KANO: Yes.

Q: What is the best time --

KANO: Yes.

Q: -- that you've spent with Dr. Juran?

KANO: Ah, yes. That was -- I -- I enjoyed a conversation with -- with him at Toronto. Okay. I visited his room in the hotel. We discussed. You see, I thought that Dr. Juran is a prophet; he knows everything. And I thought in this way. But I found his weakness. (Laughs)

That is the thing is that I -- you see, at that time, he mainly talk about the -- he is very much interested about the history of Japan, history of China. And I'm very much interested about the history of Europe, or history of -- quality history of America.

So and then I found that sometimes, not so many, but very few time, few areas, sometime I have much better understanding of the quality history of U.S. or Europe rather than him. Of course, he has more profound know ledge for every part. But some part ... he too much -- I may -- he too much -- sometime that he's very much involved in Japan or China. Okay?

And make a little less interested about what happened in U.S. or in Europe. Do you include this to the video? I think ... difficult. (Laughs)

Q: Last question.

KANO: Yes.

Q: Is there anything at all that you would like to talk about Dr. Juran that I haven't asked you about.

KANO: Yeah.

Q: That you think is important and should be on the video.

KANO: Would you say again.

Q: Is there anything at all, that you would like to say about Dr. Juran--

KANO: Uhhm.

Q: -- or what you've learned from Dr. Juran that we have not talked about, that you think should be on this videotape? That people should know.

KANO: No, I cannot remind anything.

Q: This has been wonderful. Dr. Kano, thank you very much.

KANO: Hmm.

Q: This has really been a pleasure.

(END OF INTERVIEW)

