Panel Discussion (2): Future of TQM and QC Circle

Moderator: Mr. Yoshiro Mitsufuji
Presenters: Mr. Shinichi Sasaki, Dr. Kazuyuki Suzuki, Ms. Chika Hayashi
Participant: Mr. Gregory H. Watson

MITSUFUJI   I know that everybody is tired, but let's do our best because I know that Dr. Ishikawa is probably up there and looking down on us. In Part A, we talked about Prof. Kaoru Ishikawa's great achievements and his personal characteristics. In Part B, we would like to discuss what should be done for the future and further advancement of TQM and QC Circle.

These are the instructions from Dr. Kano. First, I would like to ask each panelist to make a presentation for about 15 minutes. Then, we will have a question and answer session until five twenty in the afternoon. I am looking forward to having the discussions about this big theme.

First, I would like to call upon Mr. Sasaki who makes his presentation on behalf of the industrial world.

SASAKI   Thank you very much for your kind introduction. My name is Sasaki. This is a big theme because we're talking about the future of TQM. I would like to make a presentation about TQM from the perspective of strengthening the competitive capability of Japanese industry.

As a result of the lost two decades and of globalization, production activities have been shifted offshore away from Japan to other countries. It is said that the foundation of industry in Japan has declined. This slide is about foreign investment. The red line is foreign investment and the orange line is domestic investment. Domestic investment has declined while foreign investment increased.

If you compare investment in advanced countries with investment in developing countries, investment into developing countries is growing faster than investment in advanced countries. And if this situation continues into the future, we cannot avoid the hollowing-out of the Japanese industries.

However, I wonder if Japanese industry will continue to decline into the future. Of course, there are some issues about Japanese industry. Foreign investment is increasing at a rapid pace. There are some good qualities of Japanese

management like the bottom-up approach and nemawashi[†], root binding, where we build consensus and everybody goes in the same direction.

It is often said that decision-making in Japan is slower than in other countries. Indeed, other countries have been going ahead with structural reform while Japan has been a little bit slower in carrying out industrial structural reform.

Also, the Japanese currency has strengthened at a very quick pace. It is not always a bad thing because it represents the power of the economy of that country. However, drastic changes in the currency value may give some short-term, but big negative damage, especially to export industries.

So Japan is facing difficulties because of these things. However, as you can see in this chart, Japanese industry has still the power to continue into the future and compete in the market. There are still many companies in Japan that are basing management of their businesses on quality. The foundation for Japan, a quality-based country, remains.

And by the way, with what Dr. Ishikawa was trying to rebuild Japanese industry based on quality, the United States was doing quite similar things. They were wondering why the United States could not do what Japan could. And as a way to modify its industrial capability, the United States introduced the Malcolm Baldrige National Quality Award and began promoting standardization.

The situation in China is a little bit awkward nowadays. But the United States is very strong and we need to continue learning from the US.

As you can see at the bottom of this page, regarding the capability of Genba: actual work place manufacturing, we still have some strength in Japan. However, when it comes to the speed of logical decision-making and the speed of systematization, I think Western countries are quicker than Japan is.

In this situation, in order for Japan to continue competing in the market, of course we still have our foundation. But what should we compete in? Perhaps in the aerospace industry, medicine, robotics, and materials. Those industries may be where Japan should continue competing.

So what should be done for the future? First of all, we need to strengthen the capability of our manufacturing industry, which is considered to be one of Japan's strengths. We have been practicing TQM, but now we need to further develop and improve it.

Nowadays, people are saying that we need to focus more on the creation of customer value instead of just manufacturing products. As far as B2B business is

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[†] Nemawashi is to lay the groundwork or manipulate things behind the scenes.

concerned, we need to think about how we can create and deliver value to our customers' business process. And for B2C, companies should now think about how to provide value to customers so that the quality life of the customers can be enhanced.

Based on this understanding, in the manufacturing sector, they have to now think about how to create customer value. And for how things can be created, companies in the manufacturing sector now have to think about environmental preservation in addition to considering quality and productivity.

Also, the indirect departments, as well as the development and administrative departments, have to start thinking about what they should be doing. They should be focusing more on the excitement of customers rather than simply customer satisfaction.

As to how things should be done in these indirect departments, I believe that total participation, everybody's participation, and a bottom up approach, the gathering everybody's wisdom, and nemawashi, root binding, to share a common understanding are important. It is also important for the indirect departments to carry out these activities speedily. This is my awareness of this issue.

I have been working at Toyota, so let me cite an example from Toyota Motors. Here "Company T' means Toyota. Toyota launched the Mirai, the fuel-cell car, in December last year. The fuel is hydrogen. Toyota did not simply create this hydrogen-fueled car. Toyota tried to create a hydrogen-based society. Why hydrogen based? Hydrogen can be used as a source for various fuels. Japan does not produce any fossil fuels, so hydrogen can be used as a source of various fuels. Hydrogen would provide energy security for Japan.

Also, as I'm sure you understand, electricity can be created and generated by different things like wind, electricity, thermal energy. Nowadays Japan is not really doing any nuclear power generation.

But it is hard to transport and store electricity; therefore, we think that hydrogen is more convenient. It is easier to transport and store than electricity. So a future pollution- free and greenhouse gas-free society could be built on the utilization of hydrogen as the fuel source.

Toyota wanted to show the potential of hydrogen by providing hydrogen-fueled cars. Toyota hopes that other people will agree with this idea, support it, and do many more things by utilizing hydrogen. But that is not the only reason why Toyota launched the Mirai hydrogen-fueled car.

Toyota is promoting "own-process completion." Toyota's belief is to build

quality into each process. The needs of customers have been diversified, and technology is more advanced and diversified. As a result, the work process is much more complicated. Although the belief is to build quality into each process, this is nowadays only a mindset and not a reality out in the workplace.

In order to assure quality in our work, we believe that our capability to execute work will be enhanced greatly. Indeed, Toyota is seriously promoting own-process completion. In manufacturing, you can identify which is the process. The practice is the most difficult when it comes to the work of the white-collar workers. I think the process in terms of the white-collar workers is the decision-making process.

For example, we are having an international symposium for Dr. Ishikawa's birth centenary commemoration. Then administrative people think about where the venue should be. So the administrative or indirect department has to make decisions because those decisions make the project complete in a successful manner. And in the administrative or indirect departments, Toyota is also promoting this own-process completion, but they have more to do in this area.

If I have another opportunity, I would like to discuss this idea in more detail. But I have run out of time. Thank you very much for your close attention.

MITSUFUJI   Thank you very much, Dr. Sasaki. Now I would like to call upon Prof. Kazuyuki Suzuki from the University of Electro-communications to give his 15-minute presentation.

SUZUKI   Thank you very much. I am Suzuki from the University of Electro-communications. I would like to talk about a human-centered management in order to further develop TQM and QC Circle.

This slide shows the transition of the market share of Japanese automobiles in the US automotive market. Do you know when the arrow is pointing to? It is pointing to 1991. In 1991, the market share became 30%.

What is the most important thing here is the following statement. In 1954, the US secretary of state, Dulles, mentioned against the Japanese trade expansion policy. He said there was little chance of selling Japanese products in the United States because Japanese products were cheap and inferior in quality. There was no way Japan could do that.

However, the Japanese automotive industry won 30% of the market share in 1991 in the United States. And after that, many American executives came to Japan to learn about quality. What they were surprised at seeing is that in Japan the workers on the shop floor play the main role, while the workers in the United States

do what they are told. In the United States, QC is performed only by professionals, but in Japan, QC is performed by means of total participation because of a respect for humans and also autonomy and creativity. This is an important message left by Prof. Ishikawa, I think.

Prof. Ishikawa died in 1989. Now we have this book, The Man and Quality Control. Dr. Kano and his colleagues had been translating the book into English since last November as a part of the commemorative event, centenary of Dr. Ishikawa's birth. On July 13 of this year, thanks to many people, we completed it. Please look at the website. This slide has the information about the website. The upper URL is for Japanese version and the lower one is for English version. We also have the augmented edition both in English and Japanese version. Please look at this, too.

I had spent eight months reading this book, so I would like to talk about what I felt while I was reading this book, and then I would like to talk about what should we do from now on for the further development of society, focusing on four things.

So first, I talk about the philosophy of Prof. Ishikawa. Although it was already mentioned by the previous speakers, I would like to talk about it in my own words.

Concerning the primary goal of management, he said that the primary purpose of management is based on respect for humans. A humanistic management respects the spontaneous intentions of employees. QCD is the second purpose for management. Profit is not the first. It is important that everyone has a chance to fulfill himself, and develop self and mutual enlightenment.

In Japan, we always say "education and training" in a pair. But in the United States or in Europe, only training is mentioned. I think "education and training" implicates respect for humans, independence, and mutual enlightenment. I will talk about the training later.

As I mentioned before, in the US, workers do only what they are ordered. But in Japan, QC means total participation. Do you know a person called Alan Mulally? He was the chief developer of the 777 aircraft and CEO of Boeing. When he visited Japan to study, he learned Japanese way of QC. He doubted that workers should work just according to a manual which was handed out by a boss. That was not true. He was quite surprised at seeing that Japanese workers on the shop floor acted autonomously. In 1990, Boeing 777 was completed.

This slide shows the number of deaths of passengers per 100 million person-kilometers. After the development of the 777, the number of deaths was

drastically reduced. Actually, an aircraft is made of 3 million parts. Can they build an aircraft completely just having a manual that was handed out by a boss? According to Ishikaswa's teachings, independence and idea coming from all workers help an aircraft complete. As for aircraft accidents, accidents mostly happened before developing Boeing 777.

Prof. Ishikawa said that quality control starts and ends with education. Giving a manual to workers and then expecting everything to be all right, which is not right. This is the Taylor-ism but not the Ishikawa-ism.

As Mr. Hosotani explained about QC Circle, capability of humans, something to love for, and happy workplaces improve spiritual level of human beings as well as material level, and eventually they lead happiness for all humankind. I think this is the philosophy of Dr. Ishikawa.

Next I talk about a way of thinking. As you can see here, Dr. Juran said that quality control problem has to be solved by the QC department. Whereas Prof. Ishikawa said that problem solving has to be done by the engineering department or engineers on the shop floor. If it is necessary, they will cooperate with the quality department. It meant that quality problem should be resolved by every worker over the department. I think Prof. Ishikawa taught this for us.

Quality control and reliability should be thought together, not be separated.

Up to the 1980s, reliability had been implemented at engineering and QC was at manufacturing in the United States, especially reliability was implemented at NASA and the military mainly. However, in 1968, at QCS, Prof. Ishikawa mentioned that some people in Japan once misunderstood that quality control, quality assurance, and reliability should be thought separately. However, they have to be considered one together. Our purpose is quality assurance for customers and society to be safe and satisfied. To realize our purpose, quality control and reliability are important. I think Dr. Ishikawa taught us it.

Regarding nuclear safety, Dr. Ishikawa mentioned that collaboration between the government, academia, and industry is necessary. Dr. Ishikawa said to the government not to control but to give them stimulation. If regulations are given, only the regulated part will be good. The rest will not be good. He also said that workers shouldn't just obey what they are told, and they should use their own head.

Now, I talk about elementary and secondary education. Quality and reliability had advanced in Japan. Therefore, many Americans visited Japan to learn about them. Then they started them in the US. This is a comparison of education on

statistics in Japan, US, and Canada. In 1992, a SCANS report was published and this made the US education change. This table was created 10 years ago. For example, when first graders solve the question "what should we do for enjoying a party?", they are required to write a fishbone diagram. Fourth graders are required to write cause and result factors in a fishbone diagram.

The US and Canada started to teach statistical methods from an early age, however, generally speaking, in Japan, only when they become 11 years old, Japanese children start learning about statistics.

PPDAC is a problem-solving procedure which was created in Japan. PPDAC stands for problem, plan, data, analysis and countermeasure. It is now used at 40% of math class for all grades of elementary and secondary schools in New Zealand. Against New Zealand, Japan still focuses on solving problems that have a single answer.

This is the PISA survey asking the question Would you like to get a job requiring science? In Canada, Hong Kong, America, Taiwan, and France, the ratio of children who would like to get a job using science is much higher than that in Japan. As for Canada, Hong Kong, OECD and Japan, they represented 48%, 46%, 37% and 23% respectively. The next question is whether you want to study science after graduating senior high school or not. As for Canada, Hong Kong, OECD and Japan, they represented 46%, 41%, 31% and 20% respectively. As a result, JSQC took it seriously and established TQE, a special committee for elementary and secondary education. TQE wanted to introduce scientific problem solving education to elementary and secondary education for the purpose of using the problem solving procedure in the real world, not for passing an entrance examination. Scientific problem solving education has 3steps for solving a problem such as understanding a fact (phenomenon), investigating cause and effect as well as identifying root causes, and taking measures for a problem. TQE shows the 3 steps procedure on a website and also sets the graph contest in order to prevail the procedure.

Now we have some statistical education in elementary and secondary schools. However, teachers do not have experienced such scientific problem solving education.

Supported by 40 different organizations, I proposed to the Ministry of Education that a class of scientific problem solving method should be added to a course of study for the teaching profession as a core curriculum. First, we have to motivate children for having an interest in science. Dr. Ishikawa gave us the message that human respect, autonomy, and creativity are important. I think those

things help people have the ability surpassing it to solve a problem.

Education to bring out this autonomous way of thinking is very important to be creative in the future. Everyone is the core personnel, so the main part should be performed by the students. The education should be fun and understandable. Those three pillars are very important to bring out the performance of the children.

Now an academic society develops some teaching materials which have 3 educational pillars. This is an example of some teaching materials. What kind of illustration should be drawn in order for people to feel it cute? The position of the eyes is very important. Which one do you think cuter? This one, right? So this is the X- and the Y-axis, and they get the data. They can learn about the basis of statistics like this even though the class period is short.

Autonomy is quite important and we would like to learn about it more. Another one is the sustainable program. This shows the number of people who own automobiles and also the ratio. In Japan, it is 60%, in India it is 2%, and in China it is 9%. However, the number of automobiles is bound to increase, which may cause environmental issues. We have to prevent this.

There are also other problems. There are many children who cannot go to school. It is close to 58 million children. Also, there are many people who do not have access to safe water. And since 1998, we have seen a very high rate of suicide. There are many people who are not counted even though they committed suicide. In 2009, 50% of the deaths of people in their 20s and 30s was dead by suicide. This is 10 times more than any other industrialized country. One the other hand, suicide because of bullying at school, psychiatric problems of elementary and junior high school teachers, the number of the retired teacher under 40 years old, which has 4.6 times compared to one of 4 years ago. Now we should think again about Prof. Ishikawa's teachings.

School has to be fun for both students and teachers. Even though society is changing, we have to be autonomous and we have to be able to act by our own. You have to be kind to others and devote to society, which is what Prof. Ishikawa taught us. It has already been explained to you that he cherished respect for humans and also the division of labor around the globe. If we promote this, and QC and TQC, we can achieve world peace and happiness for all mankind.

Thank you very much.

MITSUFUJI   Prof. Suzuki, thank you. I would now like to invite the third speaker, from NTN, Chika Hayashi. Up to now, Mr. Sasaki has talked about his perspective from the point of view of the manufacturers, and also we have heard a presentation

from the industries' perspective. Ms. Hayashi is going to talk about QC Circle.

Ms. Hayashi, please.

HAYASHI   Hello. I really would like to say thank you very much for inviting me. I am different from the previous speakers. I am at the promotional office of a QC circle in a company. I am also in the Nagano chapter of the Nationwide Organization of QC Circle. I am one of the executive members and I would like to just talk about what I feel from my daily activities related to QC Circle. I would like to talk about what is really good and the future activities as well.

I am from NTN Corporation, which has the headquarters in Osaka. I am working at the Nagano manufacturing site in Nagano Prefecture. We are involved in industrial machinery, such as that used by Toyota for making cars, and also machinery for used by the aircraft, construction, and medical industries. Many companies are using our products. In three years, we're going to commemorate our centenary.

There are three things that I was asked to talk about here today. So I would like to talk about those three things. The first point is about QC Circle founded by Prof. Ishikawa. Then I would like to talk about my perspective and what I have felt during my own activities.

First of all, QC Circle are a communication tool. In the previous speakers' presentations, they were talking about the same thing. This is a picture I would like to show you.

In August this year, there was the Nagano area training session for QC Circle. In the picture, those people met for the first time in the morning session at this training. They came from different backgrounds, positions, and different companies as well. Based on QC, they had a training session for two days. Here they are using an Ishikawa diagram for analysis.

So even though they were from different companies and they had different backgrounds, they had the same theme to discuss. And even though they had seats, they just stood up to continue discussions. That means that this fishbone diagram itself as a communication tool. That is what I'm feeling. I really learn a lot myself from these kinds of training sessions.

The second point is that the growth of people is visible. We start with education and end with education. All the speakers have said the same thing. What you are not able to do before or what you didn't know before, which means that you can learn something more. And also you can solve your own problems using this tool of QC Circle.

This is an old picture, but in 2011, at our manufacturing site in Nagano, we had this QC Circle meeting. I was there too. Nationwide, only 18 circles were approved of participating which provide at the meet. For the first time we participated in the meet in Tokyo. That was a great experience.

In the upper part, there are two presenters. Before this national meet, these people had made presentations many times. As they proceeded, they really grew more and more. They were presenting their improvement examples and problem solving. They had such serious activities. They were able to grow and it was very visible. That is why they are presenting their results here. And as many presenters have said, through such presentations, more and more they keep growing themselves. I really saw and felt the growth myself.

Those presenters were just general workers, front-line workers. But through this activity, right now, both of them, in your company, might be promoted to union leader or manager position, they are actually in managerial positions. They are instructing their subordinates QC activities. That is how they have grown.

The third point is that this is a common tool globally to solve problems. That's how I feel. As I listened to all the presenters today, I felt this tool has really penetrated globally.

In our company, we have overseas sites as well. I have worked in Shanghai as an instructor. In Shanghai, there was a two-day training course for managers, and they learned how to use fishbone diagrams. After they had made this fishbone diagrams, they wanted to take a picture with me. There were three groups and I was in the picture with all of them.

We really enjoyed the activities. This was the very first classroom-type activity for them to learn this tool. This was my first time to go overseas. Through this QC circle activity, I was able to communicate with so many people.

They made this fishbone diagram. I am here, and this person to the left was the translator for this training and participant as well. After the training, she looked at this fishbone diagram and she said that this diagram was really good, really great. When I heard that, I felt that this kind of tool is really universal. That is the power of Prof. Ishikawa, I felt.

In our company, in July, we had the fifth global meeting of presentations. Overseas circles made presentations. I took this diagram from the presentations. Although it is in the common language of English this one was made by our group company in France, and this one is from a presentation from Germany. This is an Ishikawa diagram in English.

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When I look at this, I really feel how wonderful Prof. Ishikawa was. I went to Shanghai and this was part of their activities. They were using this fishbone diagram. All the group companies in overseas branches are using this diagram so that indicates how widely this activity has spread all over the world.

Next, I would like to talk about QC Circle and how I became involved. Maybe you can refer to this later. We have the QC circle headquarters and I was one of the managers nationwide. We have managerial training and we visit many companies and managers. I would like to introduce what we are doing.

As a manager in the region, we have activities. What I feel through these activities is that we can communicate with so many companies and so many people from many different companies. When you are working for your own company, all the employees sometimes have common ways of thinking. But through these activities, we can communicate with people from many different companies. We can widen our scope and grow through these activities.

Since Mr. Sasaki is here, this is a picture from when we went to Toyota. These are the managers. This picture was taken when we conducted the training. This was daytime training, and then after that, we had a drink together. This visit to Toyota was at night. Mr. Hirai was there too, to enjoy the reception at night. We really had a good time. Because I was a manager, I was able to enjoy this activity so much like this.

We went to Nissan as well. In 2011, I was the manager of the Nagano area. At that time, the Kanto chapter had nine regions. All managers of each region joined this joint meeting. We still hold this meeting, which was the plan at that time.

We also went to Nissan together. We communicated with people from different companies here as well. I talked about my problems of our company and I was given advice from all the managers here. That was reflected in what we are doing in our company. The communication was very good.

Through the managerial position and through the activities in the region, we operated courses in the region. I am an advisor as well. Through such events, we can learn what they are doing in respective companies. Through the activities we can also learn from experienced managers. Even though we are managers, we can still learn. We are promoters but we can learn more. I can build up my capacity as well through these activities. I really learned a lot.

There are so many good things. But at the time of the collapse of Leman Brothers, it was really hard for us. The number of manager companies and the number of managers were declining, so we had new managers. Managers have to

work for their own companies. Sometimes it's really hard because we are very busy.

I know there are many companies here today. I know you are cooperating with each other. But I really hope that we are going to cooperate further. I really hope that all of the companies can cooperate more. I really would like to say thank you very much in advance for all your cooperation.

Through these activities, I would like to talk about the future. There are two things I would like to talk about. First of all, talent development that is integrated with everyday duties is important. We shouldn't really pursue only profit, but since we are companies, of course, we have to make profits.

Policy management is done by many companies. Policy management, policy control itself, should be integrated into the daily activities. Otherwise, you cannot really make this policy penetrate into the whole company. And you shouldn't really impose those activities on workers. Even though they feel they are imposed, they should feel this is necessary. That should be communicated by the management.

This is a good point of QC activities. Through these activities, you can foster good talent and you can hand over skills to your subordinates. That's a good point. Through these activities, you can educate people about QC methodology. QC circle activities are a tool to communicate QC ways of thinking.

Unless you have these QC activities, you wouldn't have thought about QC. So through these activities, you can foster ideas and thoughts that are based on QC and develop human resources using QC. This is something we have to continue. You have to inherit something you didn't have before to foster people. Regional activities by managers should be continued.

To finish, I would just like to talk about what I felt when I listened to all the other speakers. It might be presumptuous of me to say this. Those people who are involved in QC activities are so good at taking care of people. That is maybe because of what they learned from Prof. Ishikawa. That is what I really felt when I listened to all of you.

When I have some trouble, everyone really, for example, gives me some materials to learn and they teach me so many things. This activity really fosters ties between people. That's my final comment.

With this, I would like to conclude my remarks. Thank you very much for giving me your precious time.

MITSUFUJI   Thank you very much. We have a little more than 30 minutes for discussion. So we will now have the Q & A. I would like to ask the panelists to entertain questions from the floor.

MARUYAMA   My name is Maruyama. I am from a company called Good Futures. I would like to ask a question to Mr. Watson and Mr. Sasaki.

Talking about the future of TQM and TQC, in Mr. Sasaki's slides, there is a distinction between the US and Japan. You indicated that there are some issues in Japan, I believe.

But if I compare the US to Japan, in the United States, innovation is quite active because there is the Silicon Valley culture and there are venture capitalists. Also, new companies are having a large amount of market capitalization.

Looking at Japanese companies, I think that they should be engaged more actively in innovation. Innovation can make it possible for small companies to become larger. QC or TQM can make it possible for smaller companies to grow larger. So how can a company use TQC to stimulate this innovation?

MITSUFUJI   Mr. Sasaki, could you respond first and then Mr. Watson could you respond to this question after Mr. Sasaki.

SASAKI   Well, if you compare Japan to the United States in terms of TQM, as I mentioned in my presentation, TQM in Japan involves everybody and based on the teachings of Dr. Deming. The Deming Prize is awarded to excellent companies in Japan.

The important thing is for companies to fulfill the basics and use the methodology of QC. If they do this, positive results should be obtained. So an overall comprehensive evaluation of the business management is part of the characteristics of Japanese TQM.

But when it comes to TQM in the United States or in the European countries, the focus is more on standardization. For business management, they try to identify important necessary requirements and the requirements can be a thick booklet. So first the requirements are identified and the purpose is to enhance the level.

So the approach may be different between Western countries and Japan. One of the biggest differences is that in Japan the key is the importance of reaching a consensus. Japanese organizations want to involve everybody. But in Western companies, decisions by the top management must be implemented quickly. I believe that there is a difference in management style between Western countries and Japan because of some historical reasons.

And about innovation or the quick advancement of technologies, under these circumstances, the American or Western style of management may be more advantageous. If the question is whether Japanese companies can quickly shift over to a Western type of management, I believe it will be difficult. Western companies

are moving quickly but in some cases the initiative may not be successful, so there are risks about moving quickly.

In Japan, we try to involve everybody. With this legacy, we can enhance the speed of decision-making. And based on Japanese-style TQM, I think that we can improve the quality of the work. In the case of Toyota, we have what is called the "own-process completion" initiative.

We know that Silicon Valley is creating a lot of innovation and we want to learn from the vitality in Silicon Valley. However, we cannot simply transplant the active innovation from Silicon Valley into Japan. There may be some difficulties because of the legal framework and also the social norms and customs in Japan. So what we need to do is we need to incorporate the advantageous aspects from the United States to the extent that. It is possible in Japan.

WATSON   Thank you, Mr. Maruyama, for your question. I think there are a couple of things that I would like to say here. Number one is that the societies of Japan and America are very different. Dr. Kano has talked about "A and J cultures" in the past.

I would say that American society is one of disposal. We throw away things too easily. So we throw away PDCA because we get DMAIC and then we forget where DMAIC came from. That is a good example. We have a new idea so we throw away the old ideas and we don't build upon them.

We replace all of those things too rapidly without really learning from their history and this is because we don't have such Japanese tradition as thinking over what we have done, reflection. And this is, I think, a very important issue when it comes to innovation.

I had an opportunity. I was given a small startup company, eight people, and in eight months we grew it to 100 people. And I was given a question by the man who owned the company and whose idea it was. He said, "Greg, I know you know how to put quality into a big company but how do you put quality into a startup? What do you do? Do you do ISO 9000? Do you do European quality award or Malcolm Baldrige or Japanese TQM?"

And I studied this and we walked step by step through this process, month by month, to see what we do, and the answer was what we do is we build a sense of responsibility in people. We accept our responsibility for the job we do, which is what I learned from Dr. Ishikawa.

Do we take responsibility for the work that we do? In an innovative company everybody doesn't have a well-defined job. You are just starting, so you don't know

you are going to do. For example, at Compaq Computer, when the company was just starting, the president was on the production line building products because there was nobody else. And when you are doing these things in a startup company, there is no well-defined job that everybody fits in to.

So innovation requires flexibility but it also requires responsibility and that means that we can reflect on what we must do and how we must work together. So the second component is not only responsibility but it's cooperation and collaboration.

The third component is inclusiveness. We have to find a way to do those things together, and in an innovative company that is what you see. You see people excited about that because they are having fun. It's no longer just a job where they come. Dave was talking earlier about this man from the labor union who came because his father changed his attitude from just having a job to enjoying what he was doing with his life.

I think that's where we need to get with an innovative company, a company where people feel like they are getting something out of the energy they have in their body and their life is going for a good purpose. When we feel that, we can do many, many different things. I don't believe that's about being Japanese or American, I believe that's about humanity. It's about how we can actually work together to be more innovative.

MITSUFUJI   Thank you very much. Related to that, yes, please.

SUZUKI   Earlier, I talked about the fact that 4,000 children are dying every day because of the water problem. Innovation can be started based on the needs that are out there. That's the teaching of Dr. Ishikawa and the teachings of TQM. In Japan, we want to cooperate with everyone to carry out this innovation going forward.

MITSUFUJI   It would take us hours to discuss this issue, and I wish that we could continue discussing it, but are there any other questions?

SATO   My name is Sato from Komatsu. Thank you very much for your wonderful presentations. I have a question for Mr. Sasaki. You talked about process completeness and you have to improve the performance of the workers. You also mentioned that speedy decision-making is necessary. From a TQM and QC perspective, how are you improving the speed of decision-making in your company? Currently, I am in charge of staff education and I have difficulty teaching that portion to the staff, so I would like to get some advice from your perspective.

SASAKI   Thank you very much for your question. Of course, this program has not been completed yet. We're still halfway, but for staff education, they complete

their work process in their brains and then within the processes you have different processes. The products and work will then be changed process to process. So you can make the decision whether those are good or bad and also you know the process. With a pair of fresh eyes, you can tell that this is wrong or good.

But for brain workers, or white-collar workers, you see the output in front of you. You don't know what was the thinking process to come up with this. For example, planning. What was the process to come up with the planning? You don't see the process. We have to have visibility of the process. This is the program of process completeness.

We have three steps. Why do you do this work? "Because I have been doing this for years. That's why." That's not the answer. Is it necessary and is it beneficial to the customers? That is the first step.

Second, after clarifying the purpose of the work, in order to achieve this, what is necessary to be done? What is the process of thinking? Of course, you will not be thinking alone. You will cooperate with the related departments. And not only one department, sometimes 20 or 30 people will cooperate. So because your decision-making will be impacting different people, those impacted people will be involved in the decision-making. That is the difficult part, but you at least have to make an effort.

When you make a decision, in order to make the correct decision, what is necessary? You need information. And by collecting information, can you make a decision? That may not be true. And if you have the information, how do you process the information? SQC and other tools have to be used in order to understand the collected information. You may have information A and information B, and then you have to understand which is the correct information. SQC tools can be used for that purpose.

The purpose of the work and the process suited for the purpose. If the process is broken down to a series of decision-making, you have to create a suitable environment such as, collecting information, analysis of the information, and collaboration with other departments.

So you have to make sure that your decision-making is the right one. If you have a good series of good decision-making, the end output will be a good one. So the processes and the environment have to be correct.

And the staff members, they have to have new challenges. Sometimes it is an unknown environment and there are things that they have never experienced. So if that is the case, they have to study and they have to make ample time to study. Until

that time, they didn't pay attention, they started their work and in the end they had wasted time, so we have to eliminate that kind of process.

Does that answer your question?

SATO   Yes, thank you very much.

HIRAMA   My name is Hirama from Fujikura. Thank you very much for your presentations. I have a question for Ms. Hayashi.

The day after tomorrow I will revitalize our QC Circle and I have to explain about the cause and effect diagram to those circles. It was good timing to listen to you today. When I am teaching shop workers tools and methods, what is the duration of time and how can we teach them, not from the QC circle or teachers, but as part of the company? If you have any good examples, that would be helpful.

HAYASHI   Well, on the shop floor, the cause and effect diagram can be used. This will be the toolbox education. When we ask them to create a cause and effect diagram, including staff members, they won't have enough time to do this. That is the usual case.

So when I teach them, I tell them that they don't have to complete it all at once. For example, they can identify the possible causes of the problems and then take this for their homework. Then they will come back to the toolbox meeting with the solutions. So I don't ask them to do things in one big lump.

At the workshop, we have a whiteboard and everybody puts their chart on the whiteboard. So those who could not join the meeting can look at what is happening. When they sleep on it, maybe different ideas will come up. Discussions are also important.

So basically, I tell them that today they will do this, the main bone of the fish. And then the next day they will do the smaller bones. That is what I teach them.

AUDIENCE 1   I'm living in an old economy. What I learned today is respect for people and education and how you see it in Japan. But for young people, how do you reach them because in our old economy you can find everything on the Internet? Why should I train my brain? Why should I be positive because I can have a like and hopefully I also get a dislike in the near future? How do you see this in your economy because on top of that I would say these young people don't have too many jobs anymore in our economy? So how do we get this quality message to these young people?

MITSUFUJI   From the viewpoint of youngsters, in Japan how do they view it? How are they viewed?

WATSON   My son is 35 and sometimes I have a hard time talking with him. But

he is an artist; he is not an engineer. He didn't think he knew anything about quality because he is a photographer. So we started talking about these things and he made a comment.

He said, "In the Internet age, everybody can talk and put their comments out there. And we feel because we chat that our comments are important and they should be treated with respect."

But not necessarily all comments are good comments. And we can judge and we can say which ones are bad quality. People can see quality in those comments, but we have to have respect for the idea that the people have had. We have to listen to them. And I think the biggest problem comes when we don't listen.

I had somebody ask me to review a book and they were talking about hearing. One time I was in the United States Congress and they have hearing rooms. You go to the hearing room and you tell the Congress what they want to hear. But the problem with hearing is that it just means that your tympanic membrane is moving. It doesn't mean anything went into the head.

So there should be listening rooms. I said, "When you change the name in Congress from a hearing room to a listening room, maybe then you'll start understanding quality." So I think this is the biggest thing and I don't believe this is a Japanese problem. It is a world problem because many of our societies, like this young Arab Spring issue, feel that they have no place to go because people don't listen, because people cannot understand their problems, and a lot of that is this idea of listening.

And I think there is another issue in this with children and that is they want to be part of the solution. They want to have their ideas to be able to advance, not to be told by society what to do and to be constrained. And this means a very open and different way of conversing.

With my daughter I have this problem that I have to figure out how to listen to her. This is very difficult. You fathers, and maybe you mothers, might understand this. We have to be able to take the time to try and understand their view. My daughter has a way with me. She says, "No, no, no, it's my turn to speak." I need to be told this because I need to be reminded the value that she has to contribute to me is very important for me to learn. So I think in many ways our youth is coming back at us with this.

MITSUFUJI   This is to Dr. Suzuki who is involved in middle school education.

SUZUKI   Through the Internet or reading materials, you can obtain knowledge. The essence or the reasonable concept that is in knowledge, which we call theory or

experience. Action for conveying theory or experience to the world, which we call contribution. What I talk about from now on is the essence of QC.

You have a standards and you have to comply with the standard, but for what? Where did it come from? You have to seriously think about the logic and the mechanism of the standard. That is real experience beyond knowledge. I think this is the real education which you should practice. You shouldn't educate students only for them to pass exams. You should teach students how to make good use of what you learn in society.

I think the wage of all the teachers in elementary, middle school or high school should be raised in order to recruit outstanding teachers and enhance education quality.

SASAKI   The economy is not very good right now. Concretely, there are no places for young people to work, so there is no motivation to study. That was a fact in the past. Now in terms of Japan, I think the problem is a mismatch. Companies want to hire people, but we have a shortage of labor. That's the situation.

In the industries and manufacturing, there is a great shortage of people who want to manufacture products. They don't want to work for manufacturing. They want to work at the service industry like financial institutions. Younger people want to work for such industries, but those industries do not have enough capacity to hire more people.

Today, we saw the statistics presented by Mr. Suzuki and I really agree. Only 20% of people want to study physics and science.

In Japan, the secondary industries are supporting the economic growth of Japan. The secondary industries are the main industry in Japan. So this is a mismatch between education and where they work. This is a big issue in Japan. I'm sorry, Mr. Suzuki, you will have to educate students so that you can make it 40% of students who want to be hired by the other industries.

NAITO My name is Naito from Sekiso. We design vibration and sound dampening systems. I have a question for Ms. Hayashi. We have QC circle leaders and I have the task to activate those leaders. Some leaders are very activated and some leaders are not. So my problem is how to instruct them. If you have any suggestions in order to activate leaders, please give me some.

HAYASHI   To activate leaders, to revitalize leaders, I would also like to have some advice for me. But I think every company has the same problem. One thing is the leaders. It doesn't really have to be the leaders only. They need to have examples of success. They need to experience success. They need to feel that it was

good that they did it and they were successful. If they can experience that, they will want to do more and get more motivated.

How to do it is something I'm really struggling with every day. I think many companies are doing the same. We do several things in our company. For example, we do our QC presentation meetings at the Nagano site and we have a nationwide meet as well. For the number one teams, we have the national presentation meeting. For example, we can send people to Sapporo, the northern part of Japan, to present, but at the same time they can enjoy Hokkaido. That is a motivation for them. By giving them such an incentive, we are trying to motivate them. I'm sorry, I don't know if this answers your question or not.

YODA My name is Yoda. I'm from Toyota. Thank you very much for all the presentations. I have a question for Mr. Suzuki. Prof. Ishikawa said not to discipline but to stimulate people. And Ms. Hayashi said that she has nationwide meetings and she fosters good leaders by stimulating them. I understand that mutual enlightenment is very important. When you think about the future, I would like to know from what perspective you stimulate people.

SUZUKI Self-initiation and motivating people are important. It's not ideal for human beings to start something because they are told to do it. So we have to act with autonomy and we have to take the initiative in doing. We should do something for our society and for our happiness. So you should lead people to that direction.

MITSUFUJI Thank you very much. I believe you have more questions, but I'm sorry it's time to close this discussion and close Part B. Thank you very much.