Isao "Ike" Kato spent 35 years with Toyota Motor Corporation in a variety of management positions in manufacturing, HR, training and development, and supplier development. Early in his career Ike was responsible for guiding external consultant Shigeo Shingo around Toyota facilities. Ike also worked extensively developing training material for TPS under the direction of Taiichi Ohno and other executives. Internally at Toyota Mr. Kato is known as the "father of standardized work and kaizen courses". If you have ever taken a training class on either of these two topics odds are you were trained by someone that was trained by Mr. Kato or one of his disciples. He is also a master instructor of TWI material. "You can not separate people development from production system development if you want to succeed in the long run" comments Mr. Kato.

Summary Notes from Art Smalley Interview with Mr. Isao Kato

TOPIC: **TWI Influence on TPS & Kaizen**
Feb. 8, 2006

Art:

Thank you for agreeing to spend some time together and answer some questions about TWI and its influence on Toyota.

Mr. Kato:

My pleasure. Nice to speak with you again.

Question: *How was TWI introduced to Toyota?*

Mr. Kato:

TWI was introduced to Japan after WWII around 1947-48 I believe. It was implemented in other companies outside of Toyota first. In 1950, during the near bankruptcy period, management and the union made a series of agreements. One agreement was for Toyota's management to respond to the union's request to create some form of supervisor development and training. The HR department of Toyota investigated existing programs and was introduced to TWI. Since it was an existing program and was receiving favorable reviews, it was evaluated and then adopted by Toyota.

Question: *Which programs were introduced and in what order?*

Mr. Kato:

First Job Instruction (JI) was introduced in the December of 1951, then in succession Job Methods (JM) in June of 1952, and finally Job Relations (JR) in March of 1953. In each case about 300 people were trained in the methods and then more of course every year after that. JR was well received and remains almost in tact to this day as a training course. We eventually altered the case study examples in the material. JM was less of a success and was abandoned after several years for reasons I will explain later on. JI was a big success and had the most impact of the three training courses by far. JI remains in Toyota today in a virtually unchanged fashion from the original.

Question: *How aware was Mr. Taiichi Ohno aware of the programs?*

Mr. Kato:

Mr. Ohno himself was very aware of the TWI programs, and he was actually a certified trainer of the material. In particular he valued JI, but was frustrated with the JM as it did not fit well with his notion of improvement. He was somewhat ambivalent towards JR.

Question: *Why was JM abandoned after a couple of years?*

Mr. Kato:

As far back as 1945 Ohno was manager of a machine and assembly shop in Toyota and started experiments to improve flow and create a more efficient line and style of production. This became known as the "Ohno line". By 1950 his thoughts on kaizen, flow, multi-process handling, visual control, and standardizing work, etc. were pretty well established in his head, and being coached to his disciples.

Initially Ohno was a proponent of JM even though he thought it narrow and lacking the scope to drive the type of kaizen that he wanted. JM's main contribution to improvement is the 5W 1H method of inquiry which he viewed initially as all right but eventually decided was too superficial. He was driving the broader thinking of the various forms of waste and the specific need to eliminate the root causes of waste and improve efficiency in the company. JM emphasized the principle of ECRS (Eliminate, Combine, Rearrange, and Simplify) and mainly looked at assembly job, machines, and material handling aspects of work but it just did not drive deep enough into the elimination of waste aspect strong enough to suit Mr. Ohno. Additionally, it must be noted that JM lacks any connection to takt time, flow, and pull style production. Eventually Ohno decided JM was not delivering results and instructed the training department to stop the JM component of the program.

Question: *What was developed to replace JM?*

Mr. Kato:

In place of JM, Professor Shigeo Shingo was invited to Toyota by Mr. Ohno to teach his view points on industrial engineering and productivity. Eventually his lectures and teachings were summarized by me and a few others in the training department into what was called the "P-course". The P stood for production or productivity. This course was the main training vehicle for the next several years for all supervisors and engineers regarding methods-based improvements.

Question: *When did the Standardized Work and Kaizen course appear?*

Mr. Kato:

Eventually in Toyota the training curriculum for TPS became clearer and more standardized. Slight modifications were made every year for different reasons. A TPS reference manual was created in 1973 (former President Mr. Cho helped draft this) and in 1978 a true standardized work class was created by myself. Eventually a Kaizen training course was created as well and it is based off the following; 1) Ohno's thinking on improvements and standardized work, 2) Shingo's "P-Course", 3) Some analysis elements of JM which survived in tact (e.g. 5W 1H), and 4) also some of my own input.

Question: *What are the main training courses for a supervisor today?*

Mr. Kato:

The stereotypical elements of supervisor training in Toyota today are still JI, JR, JS (Job Safety which Toyota developed) Standardized Work, Kaizen (sometimes these are combined as SW and Kaizen), Problem Solving, and the Role of a Supervisor. There are a couple others but these were the main ones we utilized.

Question: *Which of the TWI courses had the biggest impact and why?*

Mr. Kato:

JI was by far the most valuable and unique among the three programs as it brought a great method for 1) breakdown the job, 2) creating a four step method for training others, and 3) developing a multi-functional skills planning matrix. The reason this is critical is because Mr. Ohno was already experimenting with multi-process handling (which require some standards for the job, a notion of takt time, and thus requires a way to teach others as takt time changes). Mr. Ohno embraced JI as a way to teach supervisors how to break down their jobs, create a job breakdown sheet, and train others. Of course the standardized work

chart is needed on top of this job breakdown to balance the line to takt time and analyze it for improvement. However Mr. Ohno would scold people if they had not broken down the job properly and written it down on paper for either the sake of JI or standardized work. In a historical sense JI came at a critical juncture for Toyota as Mr. Ohno was now in a position between 1950 and 1955 to begin to roll out the learning points from the "Ohno line" to other areas in the company. The JI thinking is really critical and somewhat under-appreciated in TPS formulation. The capability to break down a job is fundament in terms of helping create a standard for teaching and training others. It is a much easier and smaller step then to create the three elements of Standardized Work (takt time, work sequence, and standard amounts of work-in-process) after JI is in place. Plus when you change takt time and move work around JI is the perfect vehicle to train people. For this reason I believe and I think that Mr. Ohno would agree that JI had by far the biggest impact on TPS formulation.

Question: What is more important JI or Standardized Work

Mr. Kato:

It is not really a question of importance; it is a question of sequence. I don't think you can do a good job of implementing standardized work or several other elements of TPS without the JI skill set in place. I have observed quite a few companies struggle with implementing standardized work, kaizen, and other items. Often the short terms gains companies obtain fall away over time. One direct reason why is that no proper plan was ever put in place to train people to the new method and the JI technique provides the exact skill set required to do this work. I can't see how standardized work can function without JI in place underneath to support it in the long run.

If you do JI properly you can eliminate so many problems that plague operations. You can stabilize the operation, improve productivity, enhance quality, and establish the fundamental elements of the job on paper for analysis. Then it is a much smaller step to next balance the line to takt time and to add the other elements of standardized work. This was the order at least in Toyota that we taught and had success with.

Question: Some have called TWI the roots of Lean – do you agree?

Mr. Kato:

TWI had significant influence on the development of our thinking and way we structured supervisor training. It is underappreciated from that point of view. However, it is not the overall roots of Lean or TPS. TWI simply did not contain most of what makes up the unique and important aspects of TPS; seven wastes, takt time, flow production, pull system, kanban, leveling, Jidoka, 5S, etc. It did give us a vehicle to enhance supervisor skill sets and it influenced the development of the Kaizen training course however that is certain.

Final Question: *Why in your opinion is TWI critical?*
Mr. Kato:

It helps build capability into the organization at the supervisor level which is very critical for TPS to succeed. TPS won't flourish if just the staff and engineers are driving it from the side. The first line of supervision is critical in making small daily improvements, leading the work teams, and making the whole system stick together. In Toyota we had a saying, "mono zukuri wa hito zukuri" which means "making things is about making people". If people want to succeed with lean or TPS they have to emphasize people development and making leaders capable of delivering improvements. TWI is a great starting point even today and a hidden strength of Toyota's production system.