

*Note: This article is part nine of a ten part series written by Art Smalley in conjunction with the 2014 TWI Summit hosted by Lean Frontiers. Art helped facilitate a meeting of TWI thought leaders that is held each year during the Summit. Following this meeting, Smalley composed his thoughts and opinions in a series of papers aimed to support the TWI community's body of knowledge. Smalley's website can be found at [www.artoflean.com](http://www.artoflean.com). The annual TWI Summit website can be found [www.twisummit.com](http://www.twisummit.com).*

In this post I will outline some of what occurred in Toyota Motor Corporation with regards to implementation of Job Methods and why the program was stopped after two years. Also I will outline what I think could be done to improve TWI Job Methods in certain regards.

In terms of history Toyota Motor Corporation rolled out TWI training in Japan in 1951, 1952, and 1953. Each year a new course was introduced starting with Job Instruction, then Job Relations, and then Job Methods. Roughly 300 supervisors were trained on each topic by the education and training department of Toyota. Job Instruction enjoyed a long run with Toyota lasting over 40 years of continued training. Job Relations was taught less often and it survived almost as long. Job Methods however was stopped after a mere two years inside of Toyota by none other than Taiichi Ohno himself for several reasons.

## Brief TWI in Toyota History Summary

- 1951 Implemented JI Program – Great Success!
- 1952 Implemented JR Program – Average Success.
- 1953 Implemented JM Program – Discontinued in 1955



Entry in the Toyota company historical archives about introduction of TWI training in Toyota starting in 1951

The simple question is why would Toyota stop the TWI training in Job Methods so quickly? The answer is essentially that it was not producing the results and the exact type of thinking that Mr. Ohno was looking for. There are many great things in TWI Job Methods. It contains a simple for step method and the ECRS Framework. Eliminate unnecessary details, combine work where possible, rearrange work where necessary, and of course not matter what seek to simplify work. There is nothing wrong with that fundamental principle.

The problem according to Toyota's former TWI master trainer Isao Kato was that Ohno was simply looking for more. In particular Mr. Ohno's system of production in particular the Just-In-Time pillar requires calculations of time in order for it to work. Otherwise you will run the risk of making too many parts and creating over-production the worst of all wastes in his opinion. There was nothing in TWI Job Methods to stop this from occurring. Similarly the concept of Standardized Work resides upon the three elements of 1) takt time, 2) work sequence, and 3) standard work in process. The takt time component of standardized work is necessary for it to work which involves time studies and break down of work elements based upon time. Job Methods fares poorly in this regard. So TWI Job Methods as wonderful and simple as it may be was just not a good fit for Toyota at that point in time.

Also in late 1955 Mr. Shigeo Shingo made his first appearance at Toyota for training sessions. Mr. Shingo was not a TWI trainer and likely had only some tangential understanding of the material. Mr. Shingo was largely self-taught in the basics of Industrial Engineering and became a consultant to industry on this topic. In particular Mr. Shingo taught four courses at Toyota to supervisors and engineers over a three decade period. The four courses he taught were 1) Time Study, 2) Motion Study, 3) Process Analysis and 4) Operational Analysis. Again the contents of these courses were straight out of basic industrial engineering text books popular in Japan at the time. The first topic of time study was of critical importance for Just-In-Time and Standardized Work to flourish so these four courses carried the day at Toyota in terms of training the next several decades.

In 1967 or so Toyota internally formulated its first official Kaizen Training Course for supervisors and engineers in production. I went through that version in the latter part of the 1980's. This course was basically a compilation of various techniques and ways to think about improvement in production. The [actual contents are in this book for parties interested in all the gory details](#). What you will find is that Isao Kato basically inserted the JM concept of ECRS back into Toyota at this point as well as a few key words such as "getting the facts" and the outline of "5W 1H", etc.

What does this have to do with the current state of TWI Job Methods implementation around the world? Well for starters I think the basic material is good enough for supervisors at least as an initial training tool. However I have to agree with Mr. Ohno and his disciples that it was lacking for more advanced purposes and that is fine. In reality we often have introductory courses and then intermediate courses and then advanced courses, etc. I have no problem with that reality and I would mirror it in the future development of TWI Job Methods instruction and development. For example the following sections could all be offered as refinements to TWI Job Methods or rolled up into a newer TWI Job Methods 2.0. That is what Toyota basically did and called the newer course Kaizen.

- Job Methods 1.0 (Centers on Breaking Down the Job, 5W 1H, ECRS)
- Job Methods 1.1 (Centers on Time Study)
- Job Methods 1.2 (Centers on Motion Analysis – Therbligs)
- Job Methods 1.3 (Centers on Operational Analysis)
- Job Methods 1.4 (Centers on Process Analysis)
- Job Methods 1.5 (Centers on Standardized Work)

Unfortunately TWI JM was deemed not enough to make TPS work...some things require time study (JIT & standardized work) and deeper analysis for improvement...

Add up what I jokingly call JM 1.1 through 1.5 and you get the actual Toyota Kaizen Course of 1967 or so that took over and displaced both JM as well as all the old Shingo P-courses. (This is in regards to skill building not simply running kaizen workshops!)

So if any party is interested I would approach improving TWI Job Methods in this regard. It is not so much that TWI JM is incorrect or ineffective. It was merely not enough for the type of improvement skill building that Toyota and Mr. Ohno were looking for in 1955. Your mileage of course may vary as the saying goes. There is no such thing as one tool that does it all. Just like Prof. Ishikawa emphasized the need for seven basic QC tools in problem solving in Japan I would approach TWI Job Methods the same manner. For example I would encourage someone to come up with the seven analysis tools of TWI Job Methods for the 21st century and introduce them in a simple structured fashion which made sense. Essentially that is what Toyota did starting in 1955 at Mr. Ohno's insistence.

Similarly I would also look to establish Training Dojo's where these skills could be practiced (see example below). The TWI Job Methods radio shield example in the original text books was merely adequate for the time period in question. I would come up with better ways to demonstrate the concept and tools for analysis and allow for better practice of the tools in question. A matrix for Job Methods and a plan for every person in terms of development would be nice as well!



