

Note: This article is part one 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. The annual TWI Summit website can be found www.twisummit.com.

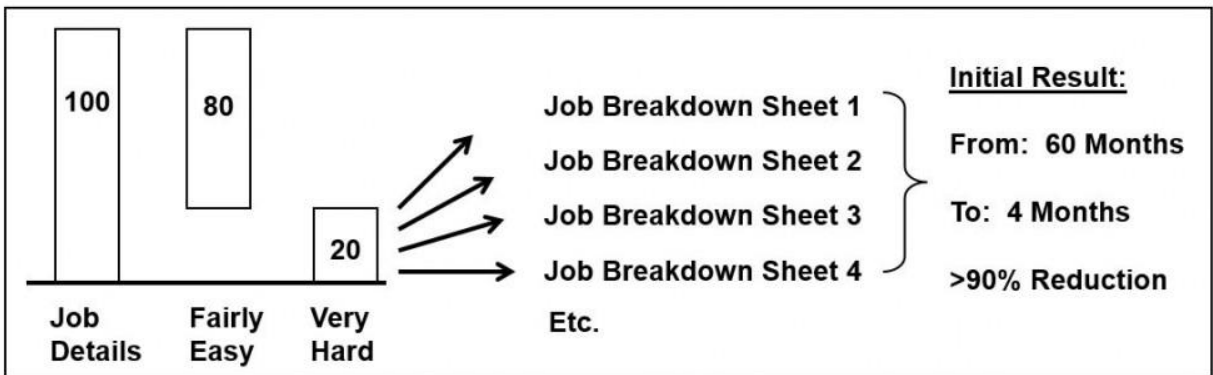
I received an invitation to present at the TWI conference in Nashville Tennessee this year. I think it was my first return visit to this particular conference in at least five years. Also I agreed to speak at the TWI Summit in Denmark in June this past summer. While at the TWI conference in Nashville I spoke to a small group on the topic of improving the TWI material and content. There are aspects of TWI that I would never dream of touching however there are parts which after years of scrutiny I find somewhat lacking. I have run into others with similar thoughts on the matter but I rarely find anything concrete in writing. So as a follow on to the conference I agreed to write up about ten or so of my thoughts on improving TWI Job Instruction, Job Relations, and Job Methods. Some ideas are small others are more challenging. Perhaps I can spur someone onto becoming one of the new "Four Horsemen of TWI" for the 21st century?

I will start with TWI Job Instruction since it is most widespread of the TWI programs. On multiple occasions over the years I have had the opportunity to run train the trainer programs on how to teach the JI course. In Toyota in Japan we had to pass an 80 hour train the trainer course in order to obtain certification. Most certification programs in the U.S. run one week long. And rarely are clients willing to spend two weeks on this topic. The material can be covered in one 40 hour week however the results are somewhat varied and not as consistent as I'd like to see. The JI training motto is "If the trainee has not learned then the instructor has not taught" so of course I always felt personal accountability for the different levels of trainer accomplishment.

Additionally some people struggled to understand the material and were intimidated by the big thick TWI course book and how to effectively fluidly memorize the contents. Staring at the book and struggling to find your next section does not instill confidence in the audience either. So one night as I was thinking about it I thought back to the original TWI JI training problem and lens grinding. As the story goes the U.S. needed 350 lens grinders to support industry needs for war time production in World War II. However at that time it took 5 years to make a master lens grinder and that was far too long for the situation. Similar problems existed in shipyards for welding and other skill intensive tasks as well.



- Shortage of 350 lens grinders
- 5 Years to learn and master
- 100's of small details
- Need more production now!



So of course what the TWI JI trainers did was establish 80/20 insights about what was really hard to learn about the job versus what was easy. For the harder parts of the job they then broke the contents down into smaller and smaller sections. Then they created Job Breakdown Sheets for lens grinding based upon the Important Steps, Key Points, and Reasons Why for the job. Training commenced under skilled grinders following this pattern and the time required to master lens grinding was shortened considerably. Initial results shortened the time required from 60 months to 4 months or by about 90%. Then after further refinement during the war years they eventually had it down to several weeks. All in all it was a tremendous accomplishment of applying the basics of Job Instruction.

As I reflected upon various problems in the TWI JI train the trainer courses I realized it was a similar problem in reality. It takes weeks or in some cases months in order for a person to master the TWI JI materials by reading, observing, and practicing in a group setting. Some people never became comfortable and are barely able to meet the standards for instruction (again that reflects on the instructor as well). So I thought about what made TWI JI hard to learn to teach and it boiled down to a few things which were generally harder for the trainee to learn. Many people have created various coaching guides for TWI-JI however I had never seen entire Job Breakdown Sheets created for each of the five sessions. So I decided to give it a whirl. Here is a sample of a partial high level Job Breakdown Sheet for session one.

Session 1: Important Steps and Key Points for Instructor

| Important Steps | Key Points |
|--|---|
| 1. Introduction | 1.1 Put class at ease 1.2 Audience introductions 1.3 Introduce yourself 1.4 Arrange for senior manager to explain why we are here |
| 2. History of TWI | 2.1 Development and background 2.2 Proven results 2.3 Fundamental part of supervisor development in Toyota today |
| 3. Goals / Problems in production | 3.1 Create awareness of company goals and problems |
| 4. Five needs of a leader | 4.1 Teaching ability is most critical to begin with |
| 5. Necessity for training | 5.1 Emphasize linkage between need for training and the company goals and problems discussed above |
| 6. Demonstrate ineffective teaching method | 6.1 Telling alone is not enough 6.2 Showing alone is not enough 6.3 Illustrating alone is not enough 6.4 Q&A alone is not enough 6.5 The right combination of above is required |
| 7. Demonstrate proper JI method | 7.1 Properly demonstrate knot |
| 8. Explain 4 step approach | 8.1 Prepare 8.2 Present 8.3 Tryout 8.4 Follow up |
| 9. Explain JI card | 9.1 Four Steps |
| 10. Conclusion | 10.1 Review key learning points 10.2 Make assignment for tomorrow. |

This is an overall Job Breakdown Sheet which I use to explain the contents of session 1. Please note I truncated "Reasons Why" for space in this post. The entire contents of the two hour Session 1 course can be outlined on a single page in this fashion. Of course detailed Job Breakdown Sheets also exist for each of the 10 major sections. For example the five key points under section one are not really key points in the conventional sense of JI. However in the next more detailed Job Breakdown Sheet for "Section 1: Introduction" those items become the major steps and for each of those items more accurate key points and reasons why are established. In reality I make the students write those as part of the daily homework

assignment. Then we review them together the following morning. Practice and review is done based upon the Job Breakdown Sheet for each section of the course.

The reality in my experience is that it vastly simplifies the process for the learner. Instead of worrying about a few thousand words, dozens of pages, and many details this puts a basic framing structure in place. Trainees ramp up their learning curve and capability faster as well as gain more confidence. Most can teach the course more effectively as a result and simply need to use about 20 Powerpoint slides along with the ten detailed Job Breakdown Sheets for Session 1 for example. In every case I still have trainers teach in teams of two for reasons of team work and quality control. The person not instructing can follow along in the TWI trainer manual and make sure nothing of importance is skipped.

Similarly in the Train the Trainer course we make use of the Job Instruction Matrix as well. Instead of filling out the production jobs we fill in the student names and the main sections of each session of Job Instruction. It helps to keep track of who has practiced what part and how well they performed. There is not enough time to do a full basic teaching pattern 7 step staircase for each person and section however if someone struggles we repeat as needed or schedule additional practice in the evening, etc.

TRAINING TIMETABLE /SKILLS PLANNING MATRIX

| | | | | | | | | | | | | | | | | | | | |
|----------------------|--|-------------------------------|---|---|---|---|---|---|---|---|---|---|---|--|--|---------|--------------|----------|---------------------------------|
| Name: | | Oper. Std. Sheet No. | | | | | | | | | | | | | | REMARKS | | | |
| Dept: | | Process or Operation Name | | | | | | | | | | | | | | | CAPABILITIES | | Personnel Needs (Reassignment) |
| Date: | | | | | | | | | | | | | | | | | | | Performance Needs (Work Manner) |
| IDEAL NUMBER TRAINED | | | | | | | | | | | | | | | | | | | |
| | | | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | | | | | | |
| | | | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | | | | | | |
| | | | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | | | | | | |
| | | | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | | | | | | |
| | | | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | | | | | | |
| | | | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | | | | | | |
| | | | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | | | | | | |
| | | | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | | | | | | |
| | | | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | | | | | | |
| | | | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | | | | | | |
| RESULT OF TRAINING | | Beginning of Year | | | | | | | | | | | | | | | | ⊕ = 100% | |
| | | Middle of Year | | | | | | | | | | | | | | | | ⊕ = 75% | |
| | | End of Year | | | | | | | | | | | | | | | | ⊕ = 50% | |
| Remarks | | Job Needs (Production Change) | | | | | | | | | | | | | | | ⊕ = 25% | | |

In reality I wish I had thought of this earlier. It makes teaching the course much easier for the instructor and the learner. I only do this sort of thing about once per year based upon special request. The rest of the

time I send people to the TWI Institute for training or to other private instructors. However I do believe this is one practice that we should all emulate. Proper instruction involves utilizing the right pattern of telling, showing, illustrating, as well as Q&A. Creating Job Breakdowns Sheets for teaching TWI-JI is a great way to embody this process. Please try it out if you are in such as position as learner or instructor and see how it goes for you. All the normal warnings and cautions about teaching Job Instruction still apply. This is not a way to shortcut other learning points and needed experience factors.