

# Job Instruction

## A Key Foundation for Developing Employee Skill

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Written by Steve Jones

Does your company have high employee turnover? Do your employees feel frustrated by the lack of training and support in mastering the skills needed for their jobs? Are your workers inefficient, falling short of their potential? Do you have highly competent workers that you can fully trust to deliver first-class expertise? Do you feel like you are constantly trying to find the balance between the high costs of training versus the high cost of not training?

The United States faced a similar crisis in the 1940s. During World War II, a majority of industrial workers entered the armed forces, leaving an enormous void in the factories. In order to keep the factories going, women and other inexperienced laborers were pulled into the workplace.

With droves of unskilled workers entering the workforce, the government needed to come up with an effective way to accurately and quickly train large numbers of people. The result was a program called Training Within Industry (TWI), which was used with amazing results. After the war it was taken to Japan to aid in the reconstruction of that nation. It was a huge success there as well, and is still used by major Japanese companies such as Toyota and Subaru.

With our company's high number of employees, we realized we needed a more efficient and effective way to teach critical skills to employees. Our vice president of manufacturing attended a job instruction summit in Florida. He came back and sold the plant manager on the TWI method. The reason this method works so well is because it requires instructors to be precise, thorough, and persistent as well as gentle and patient. Excuses

such as "Training just takes time" or "Trial and error is the best teacher" are false and ineffective. Don't let the lack of training be the cause for mistakes that employees make. Minimize mistakes by thorough training. The TWI method is best learned by seeing and hearing the demonstration, but you can grasp the basics in this article.

### Teach by telling

I taught TWI for the first time outside the workplace to an audience of business men and women in East Earl, Pennsylvania in 2012. To illustrate the power of the TWI method, I called on a volunteer to join me at the front to learn how to tie the **fire underwriter's knot**, a knot used by electricians to tie wires inside a light socket to prevent a fire hazard.

After confirming that my volunteer had never heard of such a knot, I verbally explained it to him in five precise, concise steps. I included every detail of information that he needed, but nothing extra that would confuse him. I then produced a strand of twisted lamp cord and asked him to tie the knot for me.

But in spite of my clear, verbal instructions, he failed. He demonstrated a key weakness of some job instructors—telling alone is not good instruction. The volunteer's failure was not his own fault, but the fault of the instructor.

Simply *telling* someone how to do something is a weak method of teaching. Many people don't "get it" through telling, and many operations are difficult to describe in words. Besides, few of us can use the exact words necessary. It's difficult to know if you are

describing too much or too little.

Considering that *telling alone* is not good instruction, why are countless employees being *told* how to do their work? How many of them really understand? We may think we are teaching them, but if the worker hasn't learned, the instructor hasn't taught.

## Teach by showing

Since it would have been more effective to show my volunteer how to tie the knot, rather than tell him, I started over and asked a new volunteer. He, too, had no experience with the fire underwriter's knot. I took the strand of twisted lamp cord and showed him how to tie it. I demonstrated each of the steps once with no verbal explanation, and then handed him a strand and asked him to tie the knot for me.

This volunteer failed also, demonstrating that *showing alone* is not good instruction. Even though my volunteer had seen every step clearly, he didn't know what to look for. He missed the tricky points. In a situation like this, most of us just copy motions without fully understanding them. In addition, many motions are hard to copy.

Considering that *showing alone* is not good instruction, why are countless employees being *shown* how to do their work? How many of them really understand? We may think we are teaching them, but if the worker hasn't learned, the instructor hasn't taught.

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***Telling alone is not good instruction. Showing alone is not good instruction. Instead, teach by telling, showing, and explaining why.***

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## Four basic steps of a sure-fire method

### Prepare the worker

By now I had everyone's attention. If telling isn't enough, and if showing isn't enough, what is the secret?

I asked for another volunteer. A gentleman named Melvin raised his hand. I welcomed him to the front and put him at ease. Then I said, "Melvin, I am going to train you to tie the fire underwriter's knot. Have you heard of this knot before today?"

Melvin said he had heard of it from school. "From school? Excellent! So, it's not an entirely new concept to you."

I gave Melvin a few insights to spark his interest. "Just so you know, the fire underwriter's knot is used in the assembly of light sockets." I showed him a light socket. "If you take the socket apart, you can see where the wire feeds in. Once the fire underwriter's knot is tied inside the socket, it can't be pulled through that hole. This means that if someone trips over a lamp cord, the knot will catch in the hole and absorb the tension. Otherwise one of your bare wire-ends might pull loose from a terminal and become a fire hazard. Hence the name fire underwriter's knot."

"Now, are you left- or right-handed?" Melvin indicated that he was both, so I suggested he could remain standing on my left side.

My goal thus far was to prepare my "worker" in several key ways so that he would have the best advantage as I began to teach him. My first goal was to put him at ease by learning his name and asking him a few questions about himself.

The next step was to state the job and find out what he already knows about it. This is part of putting him at ease and giving me more information as I prepare to teach him.

I also know that Melvin will learn best if he is interested in what he is learning. So I explained the function of the knot and how it potentially prevents fires. Now the job has a purpose.

Finally I determined the best position for him to observe while I tell him and show him the procedure. If he is right-handed, he should be on my left.

**Teach by telling, showing, and explaining why**

After those initial questions and explanations, I was ready to present the basic procedure to Melvin by telling and showing the important steps along with an emphasis on key points.

**Presentation 1: Telling and showing the five important steps**

1 | “So, Melvin,” I began, “The first time through, all you will need to do is watch and listen. I’m going to show you and explain to you the important steps. There are five important steps. The first step is to untwist and straighten this lamp cord. Ok?”



2 | “The second important step is to make a right-hand loop like this. Ok? So, I’m going to grab this right strand and I’m going to make a right-hand loop.”



3 | “The third step is that we will simply make a left-hand loop around the end of the right strand.”

4 | “The fourth important step is taking this left strand and tucking it through the right-hand loop, like this.”

5 | “And the fifth important step is simply pulling it snug.”

**Presentation 2: Telling and showing the five important steps and their key points**

“Now I’m going to go through it again. This time I’m going to tell and show you the five important steps along with the key points for each step.

1 | “Are you ready? The first important step is untwisting and straightening this lamp cord. The key point is six inches. Untwist and straighten six inches of cord.

2 | “The important second step is to make a right-hand loop. The key point with this step is to bring it in front of the main strand.

3 | “The third important step has three key points. The important step is to make a left-hand loop. The first key point is to begin by pulling the top of that left strand towards you a little bit. The second key point is that you are going to drop down below the end of the right strand. And the third key point is that you are going to end up behind the main strand.

4 | “The fourth important step is to simply tuck that left strand up through the right-hand loop. The key point is to enter that right hand loop from the rear side to the front side.

5 | “And the final important step is to pull it snug. Again there are three key points. First, even up the ends. Second, slide those loops down with your index and middle finger tips. And the third key point is to do it firmly.”

**Presentation Three: Important steps, key points, and explaining the reasons why they are key**

Melvin was listening and watching attentively, so I moved on to the third trip through the procedure. I explained, “I’m going to tell and show you the five important steps along with their key points, but this time I’m also going to tell you the reason why each key point is key.

1 | “The first important step is to untwist and straighten the lamp cord. The key point is six inches of cord. The reason is so the next operation has enough cord to fit through the lamp socket, make a knot, and still have enough cord to reach the socket terminals.

2 | “The second important step is making the

right-hand loop. The key point is the end of the right loop goes in front of the main strand. The reason is that if it ends up on the rear side of the main strand it will tie differently. It needs to be in the front.

3 |“The third important step is making the left-hand loop. There were three key points. The first key point is to pull the top of the left strand toward us. The reason is that it is essential to the next key point, which is dropping it underneath the end of the right loop strand, which makes the knot tie correctly. And the third key point is to take the end of the left strand loop behind the main strand. The reason is so the knot ties correctly. Not exactly rocket science, is it?”

4 |“The fourth important step is to tuck the left strand through the right-hand loop. The key point is to tuck from rear to front. The reason? So that the knot ties correctly.

5 |“The fifth important step is to pull the knot snug. The first key point is to even up the ends. The reason is so it ties evenly. The second key point is that we are going to slide those loops down using the fingertips of our index and middle fingers. The reason is that it ties more easily. The last key point is to pull it firmly, and the reason is so it remains tight.”

### **Trial and error with guidance**

After taking Melvin through the process three times—each time explaining the same steps but with more depth—it was time to hand the wire over to him. It may seem unnecessary to go through every step of the procedure, but we save time and money down the road by training efficiently and effectively in the beginning.

The next step for Melvin is to take a fresh wire and tie the knot himself while I watch. My job is to make him feel comfortable with me correcting him immediately when he makes a mistake. And if he becomes confused, I will show and explain until the faulty movements are corrected, encouraging and complimenting all the while. This is the first trial performance. Don't confuse this aspect as trial and error without guidance. Rather, it is trial and error with hands on training.

The second step in his trial performance is to have him tie

the knot again, this time having him name the important steps as he performs each one. After this, he does it again and tells me the important steps, key points, and the reason they are key.

Melvin mastered this very quickly, and I was ready to send him on to the fourth and final basic step.

### **Follow up and coaching**

Even though most workers learn the operations quickly and thoroughly through this process, follow up and coaching are still essential. Remember, if the worker hasn't learned, the instructor hasn't taught correctly. To be thorough, a worker will still need some monitoring for a time. If for any reason he confuses one of the important steps, there will not only be a flaw in that part, but very likely he will repeat it in each piece he produces until you find the mistake. Not only is this costly and wasteful for the company, it is much more embarrassing and demoralizing to your worker than catching the mistake early.

Tell your worker that you will check on him in a few minutes or hours. As he demonstrates his knowledge of the process, you can gradually allow him to complete the operation more times between checkups.

Follow-up should include gradually phasing out your supervision. Make sure that the worker knows that if he has a question, he is to ask only you, or someone you specifically assign to him. It is important that he is not confused by variations of the process suggested by coworkers. This is not to suggest that improvements and innovation to a process cannot come from coworkers.

Be consistent and persistent in your training. In the end you will have a happier, more productive employee, peace of mind for yourself, and a well-manufactured product.

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**If the worker has not learned, the instructor has not taught correctly.**

## Job Breakdown Sheet

As you prepare to teach your employees, it is best to develop a Job Breakdown Sheet. It only takes a few minutes to break the job down into its important steps, and the sheet will keep you from leaving out the critical information.

Here is an example of a Job Breakdown Sheet that I made for leaders to use in our factory. In an automobile

door, the window slides inside a track. This track is lined with a rubber glass-run channel. Different vehicles require different lengths of this glass-run channel, so for some applications a portion of the end needs to be removed. This operation is called the “tear-strip removal.”

There are four important steps for this operation, with several key points and reasons listed alongside each important step.

<b>Job Breakdown Sheet</b>		
<b>Part:</b> <i>Glass-run Channel</i>		<b>Operation:</b> <i>Tear-strip Removal</i>
IMPORTANT STEPS	KEY POINTS	REASONS
1. Cut when applicable	1. Within gauge range 2. Manually with scissors	1. To meet location specifications 2. To prevent cutting too deep into part
2. Grab tear-strip with needle-nose pliers.	1. Within 2 mm of cut on low side 2. Insert pliers to nit line 3. Add ninety degree angle	1. For complete removal 2. For easier removal 3. To prevent partial removal
3. Pull	1. Back with downward motion 2. Until entire tear-strip is removed	1. To tear evenly and completely 2. For function of the part on the vehicle
4. Check results	1. Make sure strip is 100% removed 2. Compare to master part	1. For function of the part on the vehicle 2. For validation

## Job Breakdown Sheet for Job Instruction

*For easy use, here is the TWI method in a breakdown sheet.*

OPERATION	KEY POINTS	REASONS
Prepare the worker	<ul style="list-style-type: none"> <li>▪ Put him at ease</li> <li>▪ State job and find out what he knows about it</li> <li>▪ Interest him in learning about it</li> <li>▪ Place him in best position to observe</li> </ul>	<ul style="list-style-type: none"> <li>▪ Learns best when at ease</li> <li>▪ Teach upon what he already knows</li> <li>▪ Learns best when there is purpose</li> <li>▪ Watching from the wrong angle can confuse him</li> </ul>
Teach by telling, showing, and explaining why	<ul style="list-style-type: none"> <li>▪ Tell and show each important step</li> <li>▪ Do it again including key points</li> <li>▪ Do it again adding reasons</li> </ul>	<ul style="list-style-type: none"> <li>▪ To organize and set a foundation</li> <li>▪ To increase understanding</li> <li>▪ To give each step a purpose</li> </ul>
Trial and error with guidance	<ul style="list-style-type: none"> <li>▪ Correct errors while he performs</li> <li>▪ Have him explain steps and key points</li> <li>▪ Repeat until he knows thoroughly</li> </ul>	<ul style="list-style-type: none"> <li>▪ To keep him from forming bad habits</li> <li>▪ To test his understanding</li> <li>▪ To demonstrate the importance of the job</li> </ul>
Follow up with coaching	<ul style="list-style-type: none"> <li>▪ Put him on his own, designating to whom he goes for help</li> <li>▪ Check up as needed, offering encouragement and reinforcement</li> <li>▪ Taper off coaching and follow up</li> </ul>	<ul style="list-style-type: none"> <li>▪ To keep confusion to a minimum</li> <li>▪ To keep the training process on track with the time allotted for it</li> <li>▪ To keep essential support in place as long as necessary</li> </ul>

### Summary

In summary, the method of job instruction that developed skills for hundreds of thousands of employees in the 1940's will work for you too. Workers can learn their jobs with enough telling and showing, but these two methods are not sure-fire, dependable methods. Telling and showing must be combined with explaining why. The Training Within Industry method is a sure and

dependable way that works every time if it is simply applied. If you take it home and apply it today, it will make a difference in your company.

Perhaps the most important truth to remember as you consider the process of job instruction to develop the skills of your employees is the one drilled by the TWI instructors of the 1940s: "If the worker hasn't learned, the instructor hasn't taught correctly."

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