INTRODUCTION
# PMMI Certified Trainer and Documentation Overview

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- Requirements to Become PMMI Certified
- Benefits of Being PMMI Certified
- On-the-Job Training Workshop Objectives
- On-the-Job Training Workshop Two Day Outline
- PMMI Certified Trainer Requirements and Checklist

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- Project Training Analysis
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Welcome to the PMMI Certified On-the-Job Training Workshop!

Before we begin the workshop we’d like to review the background of PMMI Certified Trainer and Documentation as well as the value it will offer to you and your company.

**Why is PMMI offering certifications?**

One of the roles of PMMI is to do surveys and research the industry, not only to identify what is happening, but also to look at trends that may affect your business in the future. In the process of conducting a survey with PMMI customers, they received an overwhelming message that said there was a need for improved training and documentation.

Customers are recognizing more and more, as equipment grows in complexity, the important role that training and user-friendly accurate documentation plays. Statistics show that well trained employees can increase productivity, and in these days of economic challenges we all need to think continually about how to improve the bottom line through increased efficiencies, among other things.

The On-the-Job Training Workshop was developed and implemented in 2001 as a response to the need for improved training and documentation in our industry. From the positive feedback and constructive recommendations of the participants the program has evolved into a two day workshop and is now more in-depth and customized than ever before, and attended by PMMI members, end users and suppliers.

The PMMI Certified Trainer program has been designed to help you and your company become more competitive, as well as, increase the skill levels of the end users.

**What is required to become a PMMI Certified Trainer?**

To become a PMMI Certified Trainer these requirements must be met:

- Active participation in the two day On-the-Job Training Workshop
- Completion of at least two job aids and a training brochure, if appropriate
- Completion of a safety elearning module and 1 safety job aid
- Completion of one lesson plan and one course overview
- One class demonstration, effectively utilizing the 4-Step Process
- Passing a short written evaluation at the end of the class

The class will get you started but you’ll need to complete 4 original training documents utilizing the class templates and an elearning safety module after the workshop to earn certification to ensure your ability to do them independently.

After completing the requirements, you as an individual, become a PMMI Certified Trainer. If other trainers within your organization would like to become PMMI Certified they will need to complete the program. Completion of the program certifies you as a trainer not your training program.

**What are the benefits of being Certified for you and your company?**

- Increase machinery safety
- Increase your equipment’s reliability
- Help customers reduce their downtime and increase efficiencies
- Help customers build their internal capacities
- Increase sales, adding revenue
- Improve your training and documentation skills and capabilities
- Differentiate your company and yourself from other companies
Introduction

How will others know that you are PMMI Certified?

- PMMI Certified embroidered emblem
- Listing on PMMI’s web site: www.pmmi.org/ms/certified
- PMMI Certified logos on collateral materials
- PMMI Certified Trainer certificate

How often do you need to get recertified?

Every two years you will be required to get recertified. If your initial certification date is between January 1 and June 30, your certification will expire two years later on June 30. If your initial certification date is between July 1 and December 31, your certification will expire two years later on December 31.

What do you need to do to get recertified?

Recertification requirements are evaluated and updated periodically. Visit www.pmmi.org/certified to view the current requirements.
On-the-Job Training Workshop Objectives

PMMI Certified On-the-Job Training is meant to put training into its proper perspective. It is NOT an end in and of itself - it is a means to help achieve a goal. Goals, expectations and planning help to ensure that the time and money that goes into training shows tangible results in the long run. Training should be a partnership between the vendor, suppliers, integrators and customer to maximize the return on the investment.

This two day practical and highly interactive class will take participants through the three stages of training within the context of a line/equipment/system installation project. You will not only get to “practice” the skills but will also receive templates (on a disk plus hard copies) that can easily be used ‘back home’ to accelerate the training process, regardless of the background and experience level of the people you are working with.

Although a great percentage of the workshop will be focused on training techniques (Section 3), and document development (Section 4), the development of a training partnership will also be emphasized through all stages.

Upon completion of the workshop the participants will:

• Be able to explain the benefits and requirements of becoming a PMMI Certified Trainer
• Be able to explain how to build an effective training partnership with customers
• Be prepared to develop a Partnership Agreement with customers
• Be able to calculate the cost of equipment unreliability due to poor or no training vs. the cost of training, and use the formula to sell training
• Be able to conduct a Training Needs Assessment and have a tool to do that with
• Be able to prepare a training budget estimate (if required) and a training proposal
• Be aware of the importance of “pre-training” needs, identifying them in the needs assessment, and how to address them with customers
• Be prepared to develop a training program and process, including scheduling
• Be able to develop user friendly job aids (job breakdown, checklist, performance checks, trouble shooting guide, etc.) as primary training documentation tools. Prepare your own samples for your equipment.
• Discuss and demonstrate the 4-step training process
• Discuss the traits of the adult learner and how to customize your training to meet their needs as well as generational and cultural difference
• Discuss typical training situations/barriers and how to handle them
• Be able to develop a realistic follow-up training plan
• Have samples of all items mentioned, plus templates that can be utilized “back home,” (On disk and hard copy.)
• Have reference materials to utilize for additional specific information needed.
Introduction

On-the-Job Training Workshop Two Day Outline

Introduction:
Workshop Overview
• PMMI Certified Trainer Requirements
• Benefits of Being PMMI Certified

Section 1: Building the Case for Training
• Case Study
• Project Analysis
• The Cost of Equipment Unreliability
• Total Cost of Equipment Ownership/Cost Calculator
• 4 Levels of Evaluation

Section 2: Begin with the End in Mind
• The Training Stages of a Project
  - Planning
  - Installation & Training
  - Follow-Up
• Planning
  - Knowing your Resources
  - Developing Your Own Training Brochures
  - Developing a Training Budget Estimate and Proposal
  - Develop training specs and a Request for Proposal (end user)
  - Accessing Training Grants
  - Doing the Needs Assessment
  - Identifying Pre-training Needs
    • Basic Skills
    • Technical Skills
  - Building a Partnership Agreement
  - Developing a Training Plan

Section 3: Training Techniques
• The Adult Learner
• Cultural and Generational Difference
• Internal/External Trainers
• The 4-Step Training Process
• Performance Checks
• Training Methods and Retention
• Learning Styles/Training Strategy
• Elearning

Section 4: Installation and On-Site Training Basics
• Training Partners: Vendor, Customer and Integrator
• Scheduling and Logistics
• Getting a Training Program/Process Started
• Developing Training Documentation & Job Aids
• Additional Job Aids: OPL & SOP

Section 5: Follow-Up and Reinforcement
• Identifying the Training/Learning “Gaps”
• Developing a Follow-up Plan
• Role of Internal Trainers
• Measuring Performance Goals

Section 6: Taking it Back Home
• Training Self Audits - OEMs and End Users
• Completing a Company “back home” Checklist
• Checklist for the Documentation Certification
• Identifying Support and Follow Up/Resource Lists

Section 7: Templates
PMMI Certified Trainer Requirements

To become a PMMI Certified Trainer these requirements must be met:

• Active participation in the two-day Training Workshop
• One class demonstration, effectively using the 4-Step Process
• Passing a short written evaluation at the end of the class
• Completion of the Course Overview (use info you did in class for your equipment)
• Completion of one lesson plan (use info you did in class)
• Completion of a Job Safety Analysis
• Completion of a document of your choice from the Templates section
• Passing the Mastery Test in the Safety First eLearning module

The 4 original documents plus the eLearning module required will be due within two weeks of the class, if not completed in class. The class will get you started, but you will need to complete additional work after the workshop.

PMMI Certified Trainer Checklist
Prior to the On-the-Job Training Workshop

_____ Identify sample documents that you’d like to share with other participants. (These documents will be used as samples to be shared, and learned from - if you are unable to bring any of these items due to unavailability or confidentiality, bring a generic item such as safety procedures).

_____ Identify a short 5 – 10 minute training demonstration that you can present at the workshop. (Time is limited so pick a task that is not time consuming). This demonstration should teach a task that you can actually do – not just a lecture.

After the On-the-Job Training Workshop

CHECK LIST

(Each participant must complete four (4) original training documents plus the safety eLearning module.) Make sure your name is on every document. Try to send them all at once.

_____ Complete Course Overview (use info you did in class for your equipment)
_____ Complete one lesson plan (use info you did in class)
_____ Complete a Job Safety Analysis
_____ Complete a document of your choice from the Templates section
_____ Pass the Mastery Test in the Safety eLearning module

Once the four documents are completed, fax or email them to the facilitator within two weeks of the class completion. NOTE: Please send all documents in a Word Document and not a PDF format to allow the Facilitator to add comments to your document.

Workshops without reinforcement and real life application can easily lose value. We feel this follow up is a critical part of the learning process and want these training tools to be USEFUL to you and your company, choose them accordingly. Your manager has been made aware that you will be required to do this and that “back home” time will be required.

Your certification will not be awarded until these items are successfully completed. If you have questions about the requirements, problems meeting the deadline, or want to submit your completed materials contact your workshop facilitator, (Nancy Cobb/cobbnb@comcast.net or Sheree Evans-Metcalf/ shereemetcalf57@msn.com.)
SECTION 1
BUILDING A CASE FOR TRAINING
Building a Case for Training

Potential Ahead – Case Study

The story below reflects an often repeated scenario in the manufacturing world. Although it is fictitious in name, the story reflects true events. You may recognize the situations and how they evolved. After reading the scenario, our job is to identify what went wrong and all the things that could be done more effectively. With your suggestions and ideas on how to improve them, we can produce a higher level of equipment reliability from effective training and a proactive partnership between the equipment vendor and the customer. You may want to underline or circle the ineffective areas as you read them.

Background

**Big Guy Co.** is a highly successful consumer goods company, with an annual sales volume over 5 billion dollars.

**Make It Co.** is a packaging equipment manufacturing company, with about 120 employees and a sales volume of 28 million. It has been very successful and is growing because of its ability to adapt to and implement new technological changes that improve the speed and reliability of their products.

Case Study

Here’s the story… Big Guy Co. was looking for a solution to a packaging problem they were having on their jazz product lines. Their current case packer and sealer were notorious for excessive downtime due to equipment failures and the time it took to repair them. They were not servo driven, nor did they have the latest in control systems. This was costing the company a significant amount of money, and they finally got approval to replace them. Since this was one of their top product lines they wanted to find technologically advanced case packers and sealers that were reliable, user-friendly (easy to operate, clean and repair), safe, and would increase speeds by 20%. Whatever manufacturer they choose would be in for a big windfall since it would mean replacing their old equipment at all of their plants that produced the jazz product.

After much research Big Guy Co. selected Make It Co. as the equipment vendor of choice. Big Guy’s Director of Engineering was friends with the Engineering Manager at Make It Co. so they had an “edge” on the competition. However, they still had to prove their equipment to Big Guy Co. since they had no prior experiences with their equipment.

Make It Co. rejoiced in their being awarded such a lucrative contract. If this worked well at “Plant A” then additional contracts would follow. The potential was high! The Sales and Marketing Manager was eager to get the project off to a good start. He did that by appointing a seasoned Project Manager who then took over the project details.

The contract details were worked out quickly so they could move forward with the project. In conversation, at that time, Big Guy Co. asked if Make It Co. could provide adequate training and documentation. They assured them that there would be no problem so no clear expectations were discussed – “there is plenty of time for that, later.”

Make It Co.’s engineers got to work adding the customization. They were in their glory designing the “bells and whistles” and getting to ap-
ploy some new technology they had wanted to try once before. The biggest advancement was the addition of a pick-in-place robotic system for the case packer, as well as the servo drives. This would save a considerable amount of money for them since it eliminated four operators per shift. It also increased the packing speed by 23%.

Once the drawings were ready and approved the maintenance staff got to work making the parts, programming and assembling the equipment. Everyone that worked on it was excited about their new challenge. At last it was ready to “try-out.” Final adjustments were now being made before the customer’s visit for their trial run and inspection. Once that was complete Make It Co. could ship it out to “Plant A” for installation, dry and wet commissioning before its final acceptance by Big Guy Co. No Field Acceptance Test (FAT) was conducted because of a time crunch.

Big Guy Co.’s Project Manager was in on-going conversations with Make It Co. about the new equipment, and now the time was near for shipment, installation, commissioning and training. In those preparations a training plan was discussed, which was then turned over to the two engineers. They were very involved with the equipment, as well as other projects, but they worked directly with Big Guy’s engineers to set up a training plan which included operators, maintenance staff and supervisors. A few problems presented themselves. Seems as though the weeks Big Guy wanted to do the training were difficult for the instructor from Make It Co., who already had been assigned to another big job. Big Guy Co. also wanted the training to be conducted on all three shifts so no one would have to rearrange their shift assignments and union issues could be avoided. They wanted customized training manuals, but no one had told Make It Co. until now. (Of course this documentation could not be ready in time.)

Make It Co.’s engineers did some rearranging and finally they had a training plan they felt would work. They assigned the field service reps to do the training since they would be on site completing the installation anyway – seemed like a reasonable solution.

**Training Week Arrives**

It was Monday and the installation wasn’t moving quite as quickly as expected. On the first day of training a major problem set in. Because the service reps were the subject matter experts on site for installation, they were called from training and put back on the equipment – a higher priority. Plant “A” wasn’t too happy about that because they had held overtime to cover for those that would be in training, which was now postponed for a day. This threw off the entire schedule. Tuesday arrived and the service reps were now ready for their trainees. As they began their presentation to a larger than expected group, they quickly realized that the maintenance staff were not at all prepared. Unbeknown to the trainers, these trainees didn’t have a basic understanding of servo drives, nor did they any understanding of robotics – another set back. Rather than canceling the class they tried to do the best they could. However, by the glassy eyes they were seeing they could tell not much was getting through.

After class they called Big Guy Co.’s engineers and explained the predicament, asking for suggestions about next steps. The training plan quickly took a dive and now had to be totally revised...again. Already the timing was set back nearly a week. Time is money!

The engineers from Big Guy and the field service reps/trainers sat
down, worked through the issues and developed a new plan, which they launched on Thursday afternoon. To get everyone in the class, some shift juggling had to be done which unfortunately caused some union issues. Although everyone was a bit unhappy they finally moved forward. The Service reps were (again) ready to start, but as they approached the classroom they found it was being used by another group. Now they had to find another location, which turned out to be very noisy and far from the actual equipment. Class finally began – it appeared they had the right people, and were teaching at a revised level to provide the basics that were needed as a foundation to the actual equipment training. They didn't have sufficient documentation so it was hard to “show” what they were talking about BUT they would soon be out on the line where the trainees could work on the real thing.

All was going well, when after about an hour with this group of six maintenance staff, two were called out to help with a major equipment problem...never to be seen again. (Oh well, that happens.) Now it was time to go out on the floor and work on the actual equipment to get the most important portion of the training – the hands-on. As they approach the moving equipment the supervisor quickly intervened, only to tell them that they couldn’t have the equipment for training. Seems no one had told the supervisor that they needed the equipment for training and it was too late now. Ugh!

The story goes on and on. End result was that the training plan was revised several times, overtime doubled from what was expected to take care of the extra training needed and the start-up curve was extended, costing everyone money. Unfortunately, this wasn’t a good way for Make It Co. to start a relationship with Big Guy Co. To try and recover from this less than positive experience Make It Co asked Big Guy Co. to a meeting to discuss the issues and how they could be avoided in the future.
## Project Training Analysis

You are in that meeting – identify the things that went wrong on the left side of this T-Chart and briefly list the positive steps that could be taken in the future to resolve them.

<table>
<thead>
<tr>
<th>- THINGS THAT DIDN’T GO WELL</th>
<th>+ HOW THEY COULD BE AVOIDED</th>
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</thead>
<tbody>
<tr>
<td><strong>PLANNING STAGE</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>INSTALLATION &amp; TRAINING STAGE</strong></td>
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</tbody>
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**NOTES**
# Project Training Analysis – Case Study

## - Things That Didn’t Go Well  + How They Could Be Avoided

### Planning Stage

- Didn’t get into training and documentation specifics early enough.
- Turned training planning over to the engineers who worked with the customer’s engineers – never included operations/HR.
- Because they waited so long to schedule trainers they didn’t have the best person to train.
- The request for training documentation came too late to accommodate the training schedule – no one knew what was wanted until the last minute.
- Training was assigned to the installation service reps – they were expected to do two things at once.

### Installation & Training Stage

- Trainers were called away from training to install.
- Overtime accumulated because of time delays.
- Schedule disrupted – delays.
- Class size was too large.
- Participants not prepared – skill wise. Had to do “prep” training to get them ready for the specific training – more time delays.
- Classroom not scheduled – being used by someone else.
- No documentation.
- Maintenance staff called away – never returned.
- Equipment not available to work on – never communicated to supervisor, so they couldn’t do the most important part of the training.
The Cost of Equipment Unreliability…

Training can be a key component of equipment reliability, if done properly. It can save a company many times over by:

- Reduction of downtime
- Reduction of equipment failure
- Fast turnaround time for repairs
- Reduction in raw and packaging material losses
- Reduction in overtime
- Reduction in costly service calls
- Reduction in safety lost time accidents
- Reduction in consumer complaints

As field reps, customers, suppliers, and trainers, we know there often isn’t sufficient time, money, and support to provide adequate training, documentation, and reinforcement (follow-up) to do the best possible training. Projects run out of money or training was never adequately budgeted for to begin with. To help you explain the benefits of training, you can do an estimate on the cost of equipment unreliability and use this to support your request for sufficient training time.

The real question becomes:

“What are the potential problems created (and money lost) by inadequate training…or no training at all?”

The following pages will help you see the dramatic affect that poor or no training can have on any equipment installation. The following pages include:

- A flowchart of the potential problems caused by unreliable equipment
- A worksheet for you to use to help demonstrate to your customers the cost of equipment unreliability that could be caused by untrained or inadequately trained end users. This may seem too time consuming to fill out – it’s merely to give you choices. You can select what is useful for you to help the decision makers “get it” – understand the value of training. In most cases, you get your point across by using just a few items on the worksheet. It could be as simple as comparing the cost of training vs. the cost of a few hours of downtime.
- A detailed breakdown of cost of equipment unreliability.
- Total Cost of Ownership Overview
- Training Cost Calculator

We show you all of these options as a way to demonstrate the value of training so you can pick the one most effective for you and your customers, whether they are internal or external.
Equipment Unreliability Flowchart

**Unreliable Equipment**
(doesn’t run at design speeds)

- Doesn’t run at the rated speed
- Labor cost for idle employees AND additional shift to cover lost production
- Cost of parts to repair equipment
- Cost of labor to repair equipment (internal or external)
- Cost of injuries associated with failures and/or repair process
- May incur higher cost if ‘make up’ shifts are run on OT (i.e. weekends)

- Shuts down due to failures and repairs and time to repair
- Incur cost of $ tied up in spare parts inventory
- May incur higher cost if work is done on overtime
- Lost sales due to word of mouth / negative publicity

**Ineffective Equipment**
(doesn’t make the “right” product)

- Cost of in process waste (raw, pkg)
- Cost of labor to run additional shift to make up for waste
- Company complaint hotline
- Coupons and discounts to assuage angry customers
- Cost of dissatisfied consumers
- Lost sales due to word of mouth / negative publicity

Cost of labor to run additional shifts to make up for lower thru puts

May incur higher cost if ‘make up’ shifts are run on OT (i.e. weekends)

- Labor cost for idle employees AND additional shift to cover lost production
- Cost of parts to repair equipment
- Cost of labor to repair equipment (internal or external)
- Cost of injuries associated with failures and/or repair process
- May incur higher cost if work is done on overtime
- Lost sales due to word of mouth / negative publicity

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The Cost of Equipment Unreliability – Worksheet

Use this to identify the cost of equipment unreliability due to ineffective or inadequate training. (Use as many items below as you need to help you effectively show true cost benefits/saving.)

<table>
<thead>
<tr>
<th>PROJECT ABC</th>
<th>COST OF TRAINING:</th>
<th>COST OF UNRELIABILITY:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Vendor cost @ hr:</td>
<td>Cost per hour of downtime:</td>
</tr>
<tr>
<td></td>
<td>Vendor Travel &amp; Expenses:</td>
<td>Cost of not having necessary and needed parts:</td>
</tr>
<tr>
<td></td>
<td>Participants Labor Cost:</td>
<td>Raw/Packaging Loss:</td>
</tr>
<tr>
<td></td>
<td>Coverage Cost: (ex. overtime, additional help etc.)</td>
<td>Product waste: (loss due to unplanned set up and repair)</td>
</tr>
<tr>
<td></td>
<td>Documentation/materials:</td>
<td>Rework of product: (labor/ materials)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Production output loss:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Catch up on production time:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lengthy changeover times:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Overtime for Repairs:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Service Calls:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consumer Complaints:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Labor Hours: (waiting OT)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Safety:</td>
</tr>
<tr>
<td>Total</td>
<td>Total</td>
<td></td>
</tr>
</tbody>
</table>

Cost of Equipment Unreliability

- Cost of Training

Bottomline Savings
Example 1
You have a packaging line that is staffed by five union employees, one electrician (part-time), one mechanic (full time) and 3 operators. They have received very limited training on the new equipment but are now expected to run it. The startup curve calls for Week 1 – 40% efficiency, Week 2 – 60%, Week 3 – 80% and Week 4 – 95%. You are now in week 4 and at 50% efficiency. The $value at 95% is $40,000 per shift (cost of operation). The problems are end user skills related and because of it, the line is still being staffed by service reps. Let’s see if we can calculate some costs. Because of the low efficiency the second and 3rd shift weren’t even started.

(It’s recommended that you get expected efficiencies from the customer to help you estimate these timelines.)

<table>
<thead>
<tr>
<th>Expected Month End Results:</th>
<th>Results Achieved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1 (40%) $16,000</td>
<td>Week 1 – (40%) $16,000</td>
</tr>
<tr>
<td>Week 2 (60%) $24,000</td>
<td>Week 2 – (40%) $16,000</td>
</tr>
<tr>
<td>Week 3 (80%) $32,000</td>
<td>Week 3 – (50%) $18,000</td>
</tr>
<tr>
<td>Week 4 (95%) $40,000</td>
<td>Week 4 – (50%) $18,000</td>
</tr>
<tr>
<td>Total $112,000 x shifts</td>
<td>$68,000</td>
</tr>
</tbody>
</table>

Project Cost Lag (due to lack of training):
(This is just first shift. In reality it would be higher if the other shifts were started, as hoped)

| Projected    | $112,000 |
| Actual       | $ 68,000 |

Project Deficit ($44,000) Remember this is JUST one shift.

Example 2
Now let’s see what effective training could do on cost vs. downtime. The line is down 2 hours for repair, but 8 hours total because of the time delay waiting for the service rep to come since the end users couldn’t fix the problem.

<table>
<thead>
<tr>
<th>Cost of Production Downtime</th>
<th>$40,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Downtime @$5000/hour x 8 hours</td>
<td></td>
</tr>
</tbody>
</table>

| Cost of Training | $2,420 |
| Trainer @ $75/ hour X 16 hours | $1200 |
| T&E $300 | $300 |
| Hourly rate of trainees |         |
| 5 @ $15 x 8 hrs | $600 |
| 2 @ $20 x 8 hours | $320 |

*For an investment of $2,420, you could have saved the cost of this downtime – $37,580 – if the internal staff had the skills to repair it themselves.
### Building a Case for Training

**Example – Cost of Equipment Unreliability**

**Assumptions**
- Hours per shift: 8
- Shifts per week: 15
- Annual demand (units): 2,000,000
- Units/shift at design speed: 10,000
- Units/wk at design speed: 150,000
- Annual Shifts/yr at design speed: 200
- # of employees/shift: 10
- Labor rate ($/hr): 20
- Labor cost/shift: 1,600
- Labor cost/week: 24,000
- Labor cost/unit at design speed: 0.160

---

#### Example #1: Startup curve without training

<table>
<thead>
<tr>
<th>Week</th>
<th>Efficiency</th>
<th>Units Produced</th>
<th>Labor Cost/Unit</th>
<th>Opportunity Cost</th>
<th>Missing Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.20</td>
<td>30,000</td>
<td>$0.800</td>
<td>$19,200</td>
<td>120,000</td>
</tr>
<tr>
<td>2</td>
<td>0.40</td>
<td>60,000</td>
<td>$0.400</td>
<td>$14,400</td>
<td>90,000</td>
</tr>
<tr>
<td>3</td>
<td>0.80</td>
<td>120,000</td>
<td>$0.200</td>
<td>$4,800</td>
<td>30,000</td>
</tr>
<tr>
<td>4</td>
<td>1.00</td>
<td>150,000</td>
<td>$0.160</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total cost of equipment unreliability: $38,400  
Cost of additional shifts: $76,800

---

#### Example #2: Startup curve with training

<table>
<thead>
<tr>
<th>Week</th>
<th>Efficiency</th>
<th>Units Produced</th>
<th>Labor Cost/Unit</th>
<th>Opportunity Cost</th>
<th>Missing Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.50</td>
<td>75,000</td>
<td>$0.320</td>
<td>$12,000</td>
<td>75,000</td>
</tr>
<tr>
<td>2</td>
<td>0.75</td>
<td>112,500</td>
<td>$0.213</td>
<td>$6,000</td>
<td>37,500</td>
</tr>
<tr>
<td>3</td>
<td>1.00</td>
<td>150,000</td>
<td>$0.160</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>1.00</td>
<td>150,000</td>
<td>$0.160</td>
<td>$18,000</td>
<td>112,500</td>
</tr>
</tbody>
</table>

Total cost of additional shifts: $36,000

---

**Does not include:**
- In process raw and packaging material losses
- Reworking rejected goods
- Destroying or donating rejected goods
- Consumer dissatisfaction

---

Higher labor cost for those units produced at the lower efficiency = # units produced x difference in labor cost/unit (actual-design)

Units that should have been produced to reach the design throughput of 10,000 units/shift – need to run additional shifts to make up for what’s missing!
Total COST of Equipment Ownership

**Acquisition Cost:** Purchase price, Engineering, installation and training

**Sustaining costs:** Operating costs: Direct labor, utilities, consumables, reliability

**Maintenance costs:** material and labor costs. cost of spare parts, cost of service, life of equipment, de-commissioning costs

**The Facts:**

- Only 1/7th of the cost of your equipment ownership is from the initial capital investment or the “acquisition cost”
- Customers have very little control over “sustaining cost”
- The area that your customer has most control over is the “maintenance cost.” To reduce the cost of ownership effective technical training can have a significant impact on your customer’s annual operating budget. It’s an area for cost reduction that hasn’t been tapped effectively.
# Building a Case for Training

## ROI Calculator

### BASELINE ASSUMPTIONS

<table>
<thead>
<tr>
<th>Units</th>
<th></th>
<th>TRAINING INVESTMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Production Volume Required</td>
<td>Lb</td>
<td>10,000,000</td>
</tr>
<tr>
<td>Length of a production shift</td>
<td>Hrs</td>
<td>8</td>
</tr>
<tr>
<td>Output per production shift @ standard</td>
<td>Lb</td>
<td>10,000</td>
</tr>
<tr>
<td>Total cost per unit of production @ standard</td>
<td>$/Lb</td>
<td>0.50</td>
</tr>
<tr>
<td>Total cost of one shift of production @ standard</td>
<td>$/Shift</td>
<td>5,000</td>
</tr>
<tr>
<td>Participant hourly labor rate</td>
<td>$/Hr</td>
<td>45</td>
</tr>
<tr>
<td>Participant cost</td>
<td>$</td>
<td>6,750</td>
</tr>
<tr>
<td>Overtime participant coverage cost @ 1.5 rate</td>
<td>$</td>
<td>10,125</td>
</tr>
<tr>
<td>Unplanned Equipment Downtime</td>
<td>%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Rejected / defective product</td>
<td>%</td>
<td>3.0%</td>
</tr>
<tr>
<td>Actual vs targeted speed</td>
<td>%</td>
<td>95.0%</td>
</tr>
<tr>
<td>Line Efficiency @ standard</td>
<td>%</td>
<td>86.6%</td>
</tr>
</tbody>
</table>

### EFFICIENCY CALCULATION

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Line Efficiency</td>
<td>86.6%</td>
</tr>
</tbody>
</table>

### PRODUCTION COSTS

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Required Production Shifts per Year</td>
<td>Shifts/Yr</td>
<td>1,000</td>
</tr>
<tr>
<td>Number of changeovers per week</td>
<td>#/Wk</td>
<td>2</td>
</tr>
<tr>
<td>Length of each changeover</td>
<td>Hrs/Chg</td>
<td>2.0</td>
</tr>
<tr>
<td>Number of people per changeover</td>
<td>#/Chg</td>
<td>1.0</td>
</tr>
<tr>
<td>Annual changeover cost</td>
<td>$/Yr</td>
<td>8,571</td>
</tr>
<tr>
<td>Service Calls per year</td>
<td>#/Yr</td>
<td>10</td>
</tr>
<tr>
<td>Avg Total Cost per Service Call</td>
<td>$/Call</td>
<td>1,500</td>
</tr>
<tr>
<td>Annual Cost of Service Calls</td>
<td>$/Yr</td>
<td>15,000</td>
</tr>
</tbody>
</table>

### SAVINGS

- Unplanned Equipment Downtime - AFTER training | %        | 4.0%     |
- Rejected / defective product - AFTER training | %        | 4.0%     |
- Actual vs targeted speed - AFTER training | %        | 96.0%    |
- Line Efficiency AFTER training | %        | 88.5%    |
- Change in Efficiency | %        | 3.5%     |

## ROI Calculation

\[ \text{ROI} = \frac{\text{Savings} - \text{Training Investment}}{\text{Training Investment}} \]

### Using Your COST Calculator

1. Fill in the shaded YELLOW boxes with actual data OR assumptions
2. The values entered into the shaded boxes under the SAVINGS heading should be better than those entered above or you MAY see a NEGATIVE ROI
3. The calculated values (NO yellow shading) change automatically, including the final ROI
4. Do NOT enter data into any cells other than those with YELLOW shading

To download this spread sheet go to [www.pmmi.org.certified](http://www.pmmi.org.certified) and check in “resources” area.
### Training ROI Calculator

<table>
<thead>
<tr>
<th>BASELINE ASSUMPTIONS</th>
<th>Units</th>
<th>TRAINING INVESTMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Production Volume Required</td>
<td>Lb 10,000,000</td>
<td></td>
</tr>
<tr>
<td>Length of a production shift</td>
<td>Hrs 6</td>
<td></td>
</tr>
<tr>
<td>Output per production shift @ standard</td>
<td>Lb 10,000</td>
<td></td>
</tr>
<tr>
<td>Total cost per unit of production @ standard</td>
<td>$/Lb 0.50</td>
<td></td>
</tr>
<tr>
<td>Total cost of one shift of production @ standard</td>
<td>$/Shift 5,000</td>
<td></td>
</tr>
<tr>
<td>Efficiency Calculation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overtime participant coverage cost @ 1.5 rate</td>
<td>$ 10,125</td>
<td></td>
</tr>
<tr>
<td>Unplanned Equipment Downtime</td>
<td>% 4.0%</td>
<td></td>
</tr>
<tr>
<td>Rejected / defective product</td>
<td>% 4.0%</td>
<td></td>
</tr>
<tr>
<td>Actual vs targeted speed</td>
<td>% 85.0%</td>
<td></td>
</tr>
<tr>
<td>Line Efficiency @ standard</td>
<td>% 83.3%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PRODUCTION COSTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required Production Shifts per Year</td>
</tr>
<tr>
<td>Total Cost per Year</td>
</tr>
<tr>
<td>Number of changeovers per week</td>
</tr>
<tr>
<td>Length of each changeover</td>
</tr>
<tr>
<td>Number of people per changeover</td>
</tr>
<tr>
<td>Annual changeover cost</td>
</tr>
<tr>
<td>Service Calls per year</td>
</tr>
<tr>
<td>Avg Total Cost per Service Call</td>
</tr>
<tr>
<td>Total Cost of Service Calls</td>
</tr>
</tbody>
</table>

### Savings

<table>
<thead>
<tr>
<th>Savings</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Unplanned Equipment Downtime - AFTER training</td>
<td>% 4.0%</td>
</tr>
<tr>
<td>Rejected / defective product - AFTER training</td>
<td>% 4.0%</td>
</tr>
<tr>
<td>Actual vs targeted speed - AFTER training</td>
<td>% 96.0%</td>
</tr>
<tr>
<td>Line Efficiency AFTER training</td>
<td>% 88.5%</td>
</tr>
<tr>
<td>Change in Efficiency</td>
<td>% 3.5%</td>
</tr>
<tr>
<td>Output per shift AFTER training</td>
<td>Lbs/Shift 10,374</td>
</tr>
<tr>
<td>Required Production Shifts per Year AFTER training</td>
<td>#/Yr 964</td>
</tr>
<tr>
<td>Total Cost per Year</td>
<td>$/Yr 4,819,602</td>
</tr>
<tr>
<td>Production Savings</td>
<td>$/Yr 180,398</td>
</tr>
<tr>
<td>Number of changeovers per week AFTER training</td>
<td>#/Wk 2.0</td>
</tr>
<tr>
<td>Length of each changeover AFTER training</td>
<td>Hrs/Chg 1.0</td>
</tr>
<tr>
<td>Number of people per changeover</td>
<td>#/Chg 1.0</td>
</tr>
<tr>
<td>Annual changeover cost</td>
<td>$/Yr 4,131</td>
</tr>
<tr>
<td>Changeover savings</td>
<td>$/Yr 4,440</td>
</tr>
<tr>
<td>Service Calls per year AFTER training</td>
<td>#/Yr 2</td>
</tr>
<tr>
<td>Annual Cost of Service Calls</td>
<td>$/Yr 3,002</td>
</tr>
<tr>
<td>Service Call Savings</td>
<td>$/Yr 12,000</td>
</tr>
<tr>
<td>Total Savings</td>
<td>$/Yr 196,399</td>
</tr>
</tbody>
</table>

**ROI = (Savings - Training Investment) / Training Investment**

**Before Training**
- Current unplanned downtime - 6%
- Rejected Product - 4.5%
- Targeted Speed - 95%

**After Training**
- Unplanned downtime after training - 4%
- Rejected Product - 4%
- Targeted Speed - 96%

**Length Changeover**
- BEFORE TRAINING: 2 Hours
- AFTER TRAINING: 1 Hour

**Service Calls**
- BEFORE TRAINING: 10/year
- AFTER: 2/year

*Here is an example of some of the changes before and after training.*

Prepared by Dan Pettit for Partners in Possibilities, Inc.
# Building a Case for Training

## The Four Levels of Evaluation

(Modified Kirkpatrick Model)

<table>
<thead>
<tr>
<th>LEVEL</th>
<th>TOOLS USED</th>
<th>WHAT IT MEASURES/BENEFITS</th>
<th>WHAT IT DOESN’T MEASURE OR DIFFICULTIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Reaction</td>
<td>Feedback Sheet (sometimes referred to as the Smiley Sheet.)</td>
<td>Looks for trainees’ reactions to the course and course materials – Helps trainer to see if the training design or instructor has “put off” trainees or made it hard to learn.</td>
<td>Not an indicator of whether the training worked or if anything was learned.</td>
</tr>
<tr>
<td>2 Learning</td>
<td>Pencil and Paper Tests</td>
<td>Test to see what the trainees have learned – what they can recall. It helps you to identify if they have learned what you taught.</td>
<td>These are often more recall than ability BUT still a step further for the trainer to gauge where the trainees’ are at.</td>
</tr>
<tr>
<td>3 On-the-Job Behavior</td>
<td>Observations, Before and After comparisons, Customer Feedback Performance Checks</td>
<td>Measures behavioral changes on the job. It tends to be particularly good for “soft skills” as well as “hard skills.” Shows if they can perform the tasks.</td>
<td>Most difficult to measure accurately since there is a lot of judgment involved. The use of specific performance checks will increase accuracy.</td>
</tr>
<tr>
<td>4 Organizational Results</td>
<td>Quantitative and Qualitative Comparisons Objectives, Business Goals, Performance Checks, Customer Feedback</td>
<td>Attempts to measure value to the bottom line. Did the training meet its goal and improve the business results?</td>
<td>Many times there are multiple factors and it’s hard to know or segregate any one element out totally. This is by far the most valuable level.</td>
</tr>
</tbody>
</table>

If you start by identifying your business goal when deciding on what training is needed, and how to do it, you are more likely to be able to successfully conduct Level 4 measurement. **Level 4 is where we can understand and sell the VALUE of training most effectively.**

In manufacturing some of the typical measurable elements are:

- Downtime/uptime
- Safety – Lost Time Accidents (LTA)
- Waste
- Consumer complaints
- Quality measures
- Service calls
- Turnaround or changeover time
- Overtime
- Equipment failure (machine history)
- Sales
- Raw and packaging material losses
- Labor costs

In class we will utilize level 1, 2 and 3, and discuss level 4. Samples of each will be discussed in Section 4 and 5.
Calculating... The Value of Training

Value Added = (S x T) (P2 – P1)

S = Salary
T = Time (% of Total Time of Job)
P2 = Post Training Productivity (% of Master Performance)
P1 = Pre-Training Productivity (% of Master Performance)

### TABLE 1
**SUMMARY SPREAD SHEET**

**Course: Two-day session on consulting skills**

<table>
<thead>
<tr>
<th>Vendor Cost: $6,000</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salary+Benefits</td>
<td>Time Component Pay Productivity Before Productivity After Productivity Gain (%) Value Added</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$50,000</td>
<td>10%</td>
<td>$5,000</td>
<td>50%</td>
<td>70%</td>
<td>20%</td>
<td>$1,000</td>
<td></td>
</tr>
<tr>
<td>$50,000</td>
<td>80%</td>
<td>$40,000</td>
<td>50%</td>
<td>80%</td>
<td>30%</td>
<td>$12,000</td>
<td></td>
</tr>
<tr>
<td>$50,000</td>
<td>70%</td>
<td>$35,000</td>
<td>50%</td>
<td>80%</td>
<td>30%</td>
<td>$10,500</td>
<td></td>
</tr>
<tr>
<td>$50,000</td>
<td>40%</td>
<td>$20,000</td>
<td>30%</td>
<td>70%</td>
<td>40%</td>
<td>$8,000</td>
<td></td>
</tr>
<tr>
<td>$50,000</td>
<td>40%</td>
<td>$20,000</td>
<td>40%</td>
<td>80%</td>
<td>40%</td>
<td>$8,000</td>
<td></td>
</tr>
<tr>
<td>$50,000</td>
<td>70%</td>
<td>$35,000</td>
<td>60%</td>
<td>90%</td>
<td>30%</td>
<td>$10,500</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>190%</td>
<td>$50,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td>32%</td>
<td>$8,333</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### TABLE 2
**END-OF-COURSE QUESTIONS**

1. What percent of your total working time will you be spending on tasks that require the skill/knowledge presented in the course? (Circle one.)

   0 10 20 30 40 50 60 70 80 90 100

2. Rate your productivity, before training, on your job tasks that require the skill/knowledge presented in the course (100 percent represents the productivity of an exemplary employee; 50 percent means that you could complete the tasks half as fast as fast).

   0 10 20 30 40 50 60 70 80 90 100

3. Rate your productivity, after training, on your job tasks that require the skill/knowledge presented in the course (100 percent represents the productivity of an exemplary employee; 50 percent means that you could complete the tasks half as fast).

   0 10 20 30 40 50 60 70 80 90 100
Simplifying ROI

Elaborate studies of return on training investments are terrific if you've got the time and money. Here's an alternative if you don't.

BY JAMES HASSETT

Everyone can always use more training. Every single person in your organization could probably benefit from learning new job skills. On the other hand, everyone could also use a week off, another $10,000 in the bank and fresh mints on their pillows each night.

On any given day, managers would rather see their employees working on the job rather than in a classroom or training center learning how to become more efficient. The costs of training are always easier to see than the costs of not training. Therefore, the question of whether employees need more training inevitably comes down to time and money. Will the time and money you invest today in training be repaid with interest in the next week, month, year or decade?

How do you measure a particular training program’s contribution to the bottom line? Several state-of-the-art cost studies prescribe exacting methods for tracking return on training investments. These methods are certainly worth considering. However, a more modest four-step procedure called training investment analysis can be an attractive alternative. This procedure can help you obtain a simple, straightforward estimate of the impact of any training program on your organization’s bottom line.

ROI Research

There’s a long, rich history of research on the effects of training — both economic and non-economic.

The New Training Library

From anthologies such as Lakewood Publications’ Evaluating Training’s Impact to Donald Kirkpatrick’s classic 1975 article “Evaluating Training Programs” Kirkpatrick delineated four levels of training evaluation: reaction (“How did you like the training?”), learning (“What do you know now that you didn’t know before?”), behavior (“What do you do differently?”), and results (“How did the training affect your organization?”). Each succeeding level of evaluation is a bit more difficult to perform and less frequently done than the one before it.

If you look at everything that happens after a training program as the result of the training program, you are falling into a classic fallacy.

Measuring results does not necessarily mean measuring a monetary return. For example, for the last several years, our company has worked on a series of training programs regarding new computer systems used by flight standards inspectors in the Federal Aviation Administration. The primary mission of the FAA is to increase aviation safety. In this context, a results study would focus on using the computer systems or on the effectiveness of

of inspection programs for aircraft and personnel, not on profit and loss.

Even profit-making institutions have training programs that are not designed to increase profits. In the banking industry, for example, employees are trained to comply with government regulations. However, in any organization that seeks to make a profit, one of the most compelling demonstrations of a training program’s effectiveness will be its effect on the bottom line, or what is often called return on investment (ROI).

In 1990, Training and Development published Return on Investment: Accounting for Training, a special report by Anthony P. Carnevale and Eric R. Schulz that summarized the American Society for Training and Development’s research on this issue. In that survey, two out of three training managers reported they felt increasing pressure to show that programs affect the bottom line. However, only 20 percent of these same organizations did ROI studies, in part because they felt this type of evaluation “takes too much time or is too costly.”

Another review (published in TRAINING, August 1991) cited a Federal Express analysis as a good example of the state of the art in measuring ROI. The study focused on 20 employees who went through the company’s two-week training program soon after being hired to drive FedEx vans. Their performance was compared with a control group of 20 other new hires whose managers were told to do no more (nor less) on-the-job training than normal.

Performance was tracked for the two groups for 90 days in categories such as accidents, injuries, time-card errors and domestic air-bill errors. The 10 performance categories had dollar values assigned by experts from engineering, finance and other groups. The cost of each accident, for example, was placed at $1,600.

The basic math for computing the ROI was straightforward. The annual cost of errors for untrained couriers was estimated at $4,833, vs. $2,492 for trained couriers. That works out to a training-produced difference of $2,341 per person per year. This is $451 more than the cost of the $1,890 training course (a price tag that includes instructors’ and trainees’ salaries, as well as the costs of hotel, meals, airfare and covering couriers’ duties during training); When this savings of $451 for one courier is multiplied by the 1097 new employees who went through the program in a recent
year, the ROI for that year was $494,747. This represents a very healthy 23.9 percent return on investment. The study itself cost about $10,000 and took five months.

This kind of rigorous evaluation doesn’t make sense for every training program, however. Would you spend the evaluation had left the department that financed it.” The need for a more modest approach, at least in some cases, is obvious.

**Meanwhile, Back in the Real World**

Many people seem to believe that corporate bottom lines provide an objective measure that can be used as the basis for a harsh brand of frontier justice: A manager makes a decision, it increases profits or it doesn’t, and the manager gets a raise or is fired as a result. In the real world, managers and accountants know that nothing is ever cut-and-dried.

Anyone who has ever written and enacted a business plan knows that financial predictions often fail to match reality. It would be nice to have a simple, inexpensive and unambiguous system for deciding what actually caused a business venture to succeed or fail. But in practice, this is somewhere between prohibitively expensive and impossible. This leads directly to a key fact underlying the rationale for training investment analysis:

**Fact 1:** Many interrelated factors affect profit and loss; training is just one. This seems painfully obvious. Training by itself, therefore because of the bottom line. But it is easy to lose sight of this fact when you are doing a study that focuses on training’s ROI.

Intuitively we know that, under some conditions, training does increase efficiency and profits. If you want people to sell a complex product, they must know what it is. If clerks are to enter orders on a form, they must be trained to fill out forms accurately. For those who distrust Federal Express study is just one in a long series of studies that supports this conclusion.

However, it also follows that, under other conditions, even the best training will not increase profits.

Suppose an eccentric entrepreneur believes that 8-inch floppy disks are going to make a comeback due to a ground swell of support for used computers. He believes that training his sales force is crucial, and he hires the best trainers in the business. But his prediction is wrong: Nobody buys the used computers or the disks.

Does that mean that the training was at fault? Of course not.

Or Suppose that a full service brokerage

**Whenever possible, judgment calls that quantify the effects of training should be made by decision makers or management.**

firm is concerned about losing clients to discount brokers. It decides that training its employees in customer support will reverse this trend. The firm invests in a customer service training program for all of its brokers and support personnel.

Unfortunately, the company also decides to continue charging an 8 percent front-end load to cover sales commissions and 4 percent per year for marketing expenses. The week that the training is completed, the cover of Money magazine gives the firm an award for the all-time-worst buy in mutual funds. Again, in profit-and-loss terms, the training likely will have no impact. But the reasons customers go to the competition have nothing to do with the training.

External factors (such as the state of the economy and the world) are difficult to analyze and nearly impossible to control. If you look at everything that happens after a training program as the result of the training, you are falling into a classic fallacy. Logicians even have a special name for this error in thinking: “post hoc ergo propter hoc,” which means “after this, therefore because of this,” which is not logically correct.

Thus, a definitive analysis of a training program’s ROI is impossible until enough time ſ months or years ſ passes and the impact becomes clear. Even then, the results are never entirely unambiguous because it is so difficult to unravel the effects of training from other variables.

All of this leads, indirectly, to a second fact underlying training investment analysis:

**Fact 2:** The most important analysis of training’s return on investment occurs before a training program is offered ſ not after it is over.

A year after the training is over your company will move on to new challenges. If the training worked, it may be no longer relevant. And, if the training failed, it may no longer matter.

According to an old Chinese proverb: To prophesy is very difficult ſ especially with respect to the future. Yet that is precisely what we do with each new business decision and each new training program. It follows that training investment analyzes that performed after the fact are mostly for the record book. They have a place in long-term corporate policy, but the most important training to evaluate is not last years, it is next years. That’s the program you will go ahead with or cancel. And that’s the program that will affect the bottom line you care about most: this year’s and next year’s.

**ROI Focus**

Before you begin a training investment analysis, ask: Will (of did) this training program give employees knowledge or skills needed to meet organizational objectives that are not directly measured by short term profit and loss? If the answer is “Yes,” then a single-minded focus on the bottom line is misplaced. Instead, you should consider analyzing non-economic results of the program, such as improved compliance with regulations or safety procedures.

If the training is aimed at increasing profits, assess how profit is measured in your organization and whether it is necessary to show how profit is linked to training. Seek out the views of key decision makers, and talk to them first about their expectations and needs.

For example, in a December 1991 article about Federal Express in *Training & Development*, founder and chairman Frederick W. Smith says:
“You could never cost justify the cost of our FXTV network or our interactive video training system. But if you ask me, those would be among the top 10 highest payoff projects we’ve ever done at Federal Express. Maybe even in the top three.” As the article explains, Smith believes it’s important for the company’s leadership to support things like quality learning and “that cut across the organization and don’t have a clear ROI.” This strong corporate belief would make a study of training investment analysis at best redundant, and at worst subversive.

The KISS Rule
It is hard to go wrong following the KISS rule - Keep It Simple, Stupid. Training investment analysis explicitly recognizes that in many situations, the best available information is an informed estimate. That being the case, the accompanying work sheet is designed to simplify the process so that these informed estimates can be reached as efficiently as possible and then put into action.

Note that training investment analysis represents a small retreat from more formal evaluations with control groups, before and after tests, and complex methodology. But also note that an easier and more practical way is how practical for you to focus on the bottom line when it matters most: as you plan your training.

Here are the four steps to a training investment analysis:

1 Determine the information your organization needs. A training investment analysis should always use the same formal procedures and terminology that other departments in your company use when they evaluate a potential investment in equipment or software. If another department has produced a report, get a copy. You may find that others avoid the term return on investment, and use an alternative accounting concept such as the payback approach or the net present value approach or the rate of return approach. If so, you should do the same. Learn to speak the same language as your financial people, and calculate costs the same way they do.

If your organization requires a sophisticated analysis, you may be able to apply models developed in previous studies of training ROI, such as:

• Ives and Forman’s multilevel ROI model, including cash in-flow

The New Training Library

Focus on bottom-line measures when it matters most: when you’re designing training.

2 Use the simplest and least expensive method possible for finding the information you need.

In many settings, the Training Investment Analysis Work Sheet will provide all the structure that you need to calculate the returns from your training program. You can use it to predict the effects of a new training program or to study the effects of an old one. It also can be used to generate the best guess or a range of possible effects - from the lowest return to the highest possible return.

At the top of the work sheet, record the overall objective of the training program, its audience and the time period in which you expect the training to produce significant economic results. For most organizations, one year is a good place to start.

If your company is known for its fiscal patience and its emphasis on long-term results, you may want to look at effects over two or three years, since longer periods will generally show greater effects. At the other extreme, if your company’s stockholders prefer instant gratification, and anything beyond the next quarter or two is considered the distant future, you may be forced to analyze the return over three to six months, even if this underestimates the total value of the training.

Part 1 of the work sheet calculates the revenue produced by training. Two options are provided. Option A, itemized analysis, provides a list of ways in which training may increase revenue: increased sales, higher productivity, reduced errors (for example, in manufacturing or billing), client retention, employee retention, and other. For example, let’s say a sales training program for computer networks results in five additional sales per person per year. If each sale produces a marginal profit of $10,000, and there are 20 salespeople in the department, the total revenue produced by training is five times $10,000 times 20 or $1 million.

Some of the figures requested here are unambiguous, such as the number of employees and revenues per sale. However, in each category, at least one of the figures requires an informed estimate of training’s effects, such as the additional sales per employee, the percent increase in productivity or the number of errors per employee avoided as a result of training.

This leads to one of the most important elements of training investment analysis: Whenever possible, judgment calls that quantify the effects of training should be made by decision makers or management. Admittedly, these figures will be informed estimates rather than unassailable truths. However, if decision makers are responsible for making the estimates, they will be far more likely to accept your final conclusion. Their participation in your estimating process is likely to increase their support of training investment analysis. At the least, this process will make it clear that the training department is sensitive to bottom-line issues and is doing as much as possible to tailor its training programs to increase profits.

After all of these judgments have been made and the calculations have been performed, the total revenue produced by training is the sum of the estimates from all categories.

In complex situations in which it’s difficult to assign the effects of training to distinct categories, the only practical way to calculate training’s effects will be to use Option B, the summary analysis. Very simply, this calculates the difference in revenues with and without training. Suppose, for example...
Building a Case for Training

Additional sales per employee
\[ x \times \text{Revenues (or margin) per sale} \times \text{Number of employees} = \text{Revenue Produced by Training} \]

Higher productivity:
\[ \text{Percent increase in productivity} \times \text{Cost per employee (salary plus benefits plus overhead)} \times \text{Number of employees} = \text{Revenue Produced by Training} \]

Reduced errors:
\[ \text{Average cost per error} \times \text{Number of errors avoided per employee} \times \text{Number of employees} = \text{Revenue Produced by Training} \]

Client retention:
\[ \text{Average revenue per client} \times \text{Number of clients retained} = \text{Revenue Produced by Training} \]

Employee retention:
\[ \text{Average cost of a new employee (training plus lost productivity)} \times \text{Number of employees retained} = \text{Revenue Produced by Training} \]

Other:

TOTAL Revenue Produced by Training: $\_\_\_\_\_\_\_\_\_

OPTION B - SUMMARY ANALYSIS

\[ \text{Revenue After Training} - \text{Revenue Without Training} = \text{Revenue Produced by Training} \]

PART 2: CALCULATING THE RETURN

\[ \text{Revenue Produced by Training} - \text{Cost of Training} = \text{Total Return on Training Investment} \]

the current sales forecast for next year is $4 million in profit. But key decision makers believe that with the added boost of a sales training program, this figure can be increased to $5 million. The revenue produced by training is then $5 million minus $4 million, or $1 million.

Once Part 1 is completed, Part 2 calculates the return by subtracting the cost of training from the revenue it produced. In the case of our mythical sales department, if it spent $200,000 on a custom-designed training program, the return would be $1 million minus $200,000, or $800,000.

3 Perform the analysis as quickly as possible.

There is always a trade-off between the rigor of a study and the time it takes to perform. Clearly, training investment analysis sacrifices rigor for simplicity and immediacy. There are many times when a rigorous study of ROI is justified and possible. But remember the New England Telephone study, which was out-of-date by the time it was completed. The training investment analysis approach is designed for situations in which time and money are severely limited. The work sheet focuses attention on the elements of a training program most likely to have an impact on the bottom line and then makes an educated guess. This can improve the accountability of the training department in a way that is visible throughout your organization.

4 Publish and circulate the results.

Ideally, summary of the results should be a desktop publication with the quality one would expect of any important corporate document. It should reinforce the idea that training is an investment and could include information on training expenses in other companies.

If you find that a particular training program will cost more than it will produce, publish and circulate the results just as quickly as you would with a positive study. It will increase your credibility as someone who is willing to face harsh bottom line realities and adjust to them.

With any luck, your study will provide irrefutable evidence of what trainers have known all along: Many training programs pay for themselves by increasing profits and/or reducing costs.
How to Escape Corporate America's Basement

There's just one way to earn respect in business: Contribute to the bottom line. You can demonstrate the dollar value of training without spending all of your time on elaborate evaluations.

BY JOHN V. NOONAN

I often tell colleagues that I can find the training department in any corporation within 10 minutes. It's easy. Go to the basement and walk around. When you get close to the loading dock, you're almost there.

There is one exception to this rule. If the corporation has multiple buildings, go to the structure farthest from the executive offices. Then look in the basement.

All right, that's hyperbole. But it's a fact that training is at the bottom of the pecking order in most companies. The problem is that training is seen as a staff function that doesn't really contribute to the bottom line.

If you're a trainer who wants to move out of the basement and increase your political status, I have succinct advice for you: Use bottom line evaluation to show the value added by training.

The prime formula in the business world is really quite simple: Revenue minus cost equals profit. Departments and individuals who show how their activities relate to this formula do well. They are better positioned in the organization and have higher status than those that don't. Think about it.

The language of business is revenue, profit, market share, stockholder's equity and operating income. What is the language of training? Left brain/right brain dominance, Metacognitive strategies, MyersBriggs personality-type testing. And, my personal favorite, neurolinguistic programming.

The New Training Library programming. That one always makes me reach for the little airplane bag.

Is it any wonder "businesspeople" don't buy into the value of training? This may sound harsh, and my guess is that many of you are thinking, "Noonan, you're just another blood-sucking capitalist like those other idiots I have to deal with every day. Fine, be outraged. But your indignation isn't going to change line managers' low opinions of training.

Evaluation

Why do trainers have such a hard time justifying their existence? The language problem is one reason, but there are others.

First, the data you need in order to document the financial value of what you do is hard to get. It's not just lying around waiting for you to pick up. No one hands it to you. You have to come up with creative ways to get it.

Second, management is not going to give you any clear directions or expectations about how to prove your value. Top managers rarely will give you feedback on your programs. And when they do, it's usually too late.

When is it too late? Here's one clue: Your boss calls you into the office and says, "The executive board is very pleased with the training programs. But they notice that we have spent a lot of money on training, and they think it's time to evaluate the programs [read "department" and "you"] to see which ones are working well and which ones aren't."

Your first reaction might be, "Good. It's about time upper management showed some interest in training." Let me offer another interpretation: These executives have already made up their minds. They are offering you a "courtesy" chance to justify your existence because they want this to look like a business decision, but your department is about to go down the tubes. If management asks for an evaluation, it's generally too late.

A third difficulty is that most trainers lack skill and knowledge in the whole area of measurement, statistics, research and evaluation. They roll their eyes backward when they see numbers, which always conjure up images of the C's they received in Algebra I.

But that's only half of the problem. Actually, the distribution of mathematical skills in the training community is bipolar: Trainers either know nothing or they have advanced degrees in measurement and evaluation. This brings up a related issue. The people who do understand measurement and statistics carry all kinds of academic baggage. You'll hear "...not experimentally sound..." Campbell and Stanley's experimental and quasi-experimental research designs... separation of variables... can't randomly assign control groups... can't control independent variables."

Get a grip, folks. Businesspeople aren't looking for experimental "proof." They only want reasonable evidence for a plausible business case. Persuasion on the value of training is more a matter of organizational positioning than of airtight experimental research. If you want to publish in a refereed journal, get a job at a university.

Fourth, evaluation is often thwarted by a lack of resources. Good evaluations take time. Lots of it. I often hear trainers say, "If I had that much time, I would rather spend it putting together and offering another training program."

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This is a lot like a marksman saying, "If I had 10 more minutes, I'd rather shoot at the target than look to see if the first 20 shots got close." Yes, good evaluations are time consuming. But it is time well spent.

Finally, trainers are usually in low staff positions without access to the data they need to do the best evaluations. They lack the authority to look at the most valuable information: productivity data relating to the performance of trained and untrained people on the job. (This is assuming such information exists at all in a usable form, which it often doesn't.) What do you do? For starters, you can simply ask those with access to supply you with the data. This may or may not require some persuading. If you can't do that, then you have to come up with your own creative productivity measures.

Levels of Evaluation

You can evaluate training on several different levels. At what we might call Level 0, you can keep records of "who took what courses when." This is very easy to do with a desktop computer, but it really doesn't show how you are adding value. Some people call this data "rump hours" or "bic hours" (for "butts-in-chairs"). If you are not already evaluating at this level, then put down this article and start typing your resume. There's no hope for you.

As for determining the quality of a training program, Donald Kirkpatrick's time-honored model proposes that there are four levels of evaluation. Each level gets harder to do, but gives you better data. The theme: Easier techniques have less value; harder techniques give greater value. (Isn't life like that?)

Level 1: Reaction. Did students like the course? This is what you find out with those evaluation forms you pass around at the end of a class. The data you gather this way is nice to know, but you wouldn't want to walk into a meeting of the executive team and say: "See? We know that training is adding value because the students give our courses high ratings."

Level 2: Learning. What did students actually learn in the course? Can they do something now that they couldn't do before the training? Learning is usually measured with pre- and post-tests, but sometimes with a post-test only. You're getting closer, but top management is cautious because you are still confining evaluation to the training event. They'll ask, "What impact has this learning had on the job?"

Level 3: Transfer. Are students applying what they learned to their jobs? Follow-up surveys of participants and supervisors or on-the-job observation are the usual methods for determining if training transferred. Finally, you have taken evaluation out of the training event to demonstrate some impact on the organization. With this data, you are going to get management's ear.

Level 4: Results. What is the impact on the organization of this change in behavior on the job? Are sales up? Costs down? Cycle time reduced? Is time saved? Usually this level of evaluation requires you to look at actual job performance and productivity. When you present this data to top management, you'll hit a home run. Why? Because you're talking dollars, cost savings, the bottom line - the language of business.

A Better Way

If you could, perhaps we'd do a Level 4 evaluation for every course we run. But face it, we can't. There's no time.

Or is there? Allow me to illustrate a technique that we use at Kraft General Foods to compute a dollar value for every course we run. Our monthly report to management includes a spreadsheet that shows the value added to the business by each course.

In one year, the grand total was over $3.1 million. Not bad for a two person training department!

How do we do this? We cheat! We use a Level 1 technique to collect Level 4 data. (Our apologies to Dr. Kirkpatrick)

Before you gasp in horror, however, remember that we're looking for plausible evidence of training's value, not experimental proof.

Here's the rationale. Assume that I'm paying Fred $50,000 (in salary and benefits) to do a job. Suppose I can isolate a set of job tasks - Tasks A, B and C - on which Fred spends 20 percent of his time. This means that I am paying Fred $10,000 a year to do Tasks A, B and C. Suppose that I can measure Fred's productivity on Tasks A, B and C before the training, and suppose I find that his productivity is 60 percent that of an experienced, high-performing individual at the same salary level.

This means that before the training...
Fred’s value to the organization, for Tasks A, B and C, is $6,000 (60 percent of $10,000). Forget for a moment that I am actually paying him $10,000 to do Tasks A, B and C. Now suppose that I take a post-training measure of Fred’s productivity and find that he is now 80 percent as productive as an experienced, high-performing individual. Fred’s new value for Tasks A, B and C is $8,000 (80 percent of $10,000). I have added $2,000 of value by training him!

Ready for the mathematical formula? Here it is.

Value Added = (S x T) (P2 - PI), where:
S = Salary.
T = Time (percent of total).
P2 = Post-training Productivity (percent of master performer).
PI = Pre-training Productivity (percent of master performer).

This technique is based upon the seminal and underappreciated work of Lyle M. Spencer Jr. (see the Handbook of Human Resource Development, American Management Association, 1985). Table 1 shows a typical spreadsheet applying these computations to all the students in a class. (For simplicity, we assumed a common annual compensation.)

Last year we averaged $6,000 of value-added per student per course. Multiply that times your number of student days!

### Getting the Data

I can hear it now: “Sure, but how do you get these productivity measures?”

**Answer:** We use a well known but little-used technique. We ask the people involved.

Table 2 shows the questions we ask on the end-of-course evaluation form. (Yes, I said the end-of-course form, not a survey sent out a few months after the course, when graduates presumably would have a far better handle on the actual impact of the training on their job performance. I know it sounds fishy, and we’ll return to this point in a moment.)

The data from Question 1 goes into Column B on the spreadsheet; Question 2 into Column D; and Question 3 into Column E. The numbers add up quickly. People won’t believe how much value - dollars - your training really provides. You’ll need to walk them through the rationale and spreadsheet.

Then the objections will come. Don’t worry, you can handle them.

### The New Training Library

<table>
<thead>
<tr>
<th>TABLE 2</th>
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<tbody>
<tr>
<td>END-OF-COURSE QUESTIONS</td>
</tr>
<tr>
<td>1. What percent of your total working time will you be spending on tasks that require the skill/knowledge presented in the course? (Circle one.)</td>
</tr>
<tr>
<td>0 10 20 30 40 50 60 70 80 90 100</td>
</tr>
<tr>
<td>2. Rate your productivity, before training, on your job tasks that require the skill/knowledge presented in the course (100 percent represents the productivity of an exemplary employee; 50 percent means that you could complete the tasks half as well or half as fast).</td>
</tr>
<tr>
<td>0 10 20 30 40 50 60 70 80 90 100</td>
</tr>
<tr>
<td>3. Rate your productivity, after training, on your job tasks that require the skill/knowledge presented in the course (100 percent represents the productivity of an exemplary employee; 50 percent means that you could complete the tasks half as well or half as fast).</td>
</tr>
<tr>
<td>0 10 20 30 40 50 60 70 80 90 100</td>
</tr>
</tbody>
</table>

### Objections

First off, skeptics will say, “This isn’t real productivity data, it’s just people’s perceptions!” They’re right; it is just participants’ impressions. Suppose they only improve half as much as they think they will. Believe me, you will still have some very impressive numbers. Or, you could use this objection as an entree to collecting on-the-job data. (“You’re right. It would be a stronger case if I had objective performance data. Can you help me get it?”)

Next objection: “If you want accurate...

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### You’ll need to walk through your computations to quell their skepticism.

Rate data, you need to ask the bosses. People always think they’re better than they really are.” When I hear this one at a presentation, I usually ask the audience for a show of hands: “Hands up all of you who think that your boss can give a better estimate of your productivity than you can.” I haven’t had anyone raise a hand yet.

Next, the most obvious one: “Wait a minute! You ask these questions at the end of the course, when everyone is all pumped up from it. What do you expect? Of course they’ll inflate their estimates.” This one actually called for some follow-up study. We tested the stability of the ratings. We surveyed a sample of participants and their managers three to six months after several courses. We asked the same questions, altering them slightly so that they asked about actual productivity on the job since the training.

We got data back on 26 participants across 13 classes. (Yes, that’s a pretty lousy response, and it explains precisely why we’d rather pass out the surveys at the end of the course, when we have a captive audience.) The participant ratings were fairly consistent. They had overestimated by 17 percent (24 percent vs. 41 percent) the amount of time they spent on job tasks that required the skill taught in the course. They showed roughly the same pre-training estimate of productivity (50 percent vs. 52 percent), but overestimated their post-training productivity by 9 percent. That is, three to six months later they said that they were 8 percent less productive than they thought they would be - roughly 73 percent of an experienced, high performing person vs. 81 percent.

The managers’ estimates of time spent on the job tasks were 27 percent less than the participants’ estimates, and the managers rated participants’ pre- and post-training productivity lower. But managers’ and participants’ estimates of pre- to post-training productivity gain were the same - roughly 30 percent higher. Our formula uses productivity gain to compute value added, so the fact that the managers supplied lower pre- and post-training ratings doesn’t affect our computation.

What does this all mean? It shows that there is error in the rating process. But with our study, we made a reasonable

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Evaluating Training’s Impact 19
attempt to measure the error and, consequently, we can adjust for it. The net effect is that we routinely reduce our estimate of value-added by 27 percent. That is, we compute the value on the spreadsheets, then multiply by .73 to arrive at an adjusted value. The numbers are still not too shabby. A $4 million estimate is reduced to about $3 million? So what? I’ll take it.

Next objection: “I’m not convinced. You admit there is error. You still have nothing but people’s opinions. You don’t have any hard data!” Response: “We’re building a business case, not trying to publish in an academic journal. Why don’t you go get a job at a university?”

I’m not claiming that executives will take one look at numbers like these, swallow them whole, and sit back delighted with the meal. When you start presenting millions of dollars of value, they are likely to be skeptical. You’ll need to walk them through the rationale and computations carefully to change their skepticism to understanding.

We trainers have claimed for years that a solid training program adds tremendous value to an organization. And we’re right. This simple evaluation technique helps to bear us out. It also has great intuitive appeal. You maximize the value added by training when you have courses that (1) teach skills that people use a lot on the job, and (2) produce the greatest gain in productivity - regardless of the initial productivity level.

If you’re still with me, your action items are obvious.
1. Stop speaking in training jargon.
2. Talk as if you’re in business. (You are.)
3. Think strategically about how you demonstrate your value to your organization.
4. Keep your eyes on the productivity of real people in real jobs.
5. Use some kind of technique to compute how many dollars of value you’re bringing into the organization. (If you don’t like the model described here, use a different one.)

Notes:

20 Evaluating Training’s Impact
SECTION 2

BEGIN WITH THE END IN MIND
The Stages of Project Training

Stage One: Planning
• Know What You Do and Tell Your Customer
• Develop a Training Budget Estimate and Proposal
• Conduct a Needs Assessment
• Identify Pre-Training Needs
• Know What You Need from Your Training Partners
• Develop a Partnership Agreement
• Design Training Documentation

Stage Two: Installation & Training
• Establish Schedules and Logistics
• Train Internal Trainers (if available)
• Train Participants
• Utilize and Refine Training Documentation
• Evaluate Trainees
• Provide Feedback to Customer Upon Completion

Stage Three: Follow-Up/Reinforcement
• Identify the Training “Gaps”
• Develop and Use Class Feedback and Evaluation Forms
• Develop a Training Follow-up Plan
• Identify and Support the Role of Internal Trainers
• Measure Performance Goals
Stage One: Know your Resources

In this critical planning stage it’s important that you start by:

- Knowing what your resources and capabilities are, and
- Sharing those resources with your customer

Often your customer doesn’t know what to ask for or what is even possible. Customers often assume you have manuals, and will provide training. They may also assume training is covered in the Capital Appropriate Request, usually hidden somewhere under “service.” It’s your job or your sales engineer’s job to provide them with a comprehensive overview of what you can offer them. Do it now while the opportunity offers itself! It can actually make the difference in getting a sale or not. You can make their lives easier, as well as yours, with a simple overview sheet or brochure. Not only will the customer be appreciative of this information, it will send a clear message to them about how important training and documentation can be to the success of the project.

You may be saying “that’s not my job” as a service tech or trainer, but remember you are the person the customer works with directly. You have a big impact on their impression of your company, its equipment and services. You can be “key” in encouraging further sales. Yes, really you are a sales person whether you want to be or not.

As a trainer/service tech you can make a substantial impact by helping your customers:

- Operate, repair and maintain the equipment so it is reliable
- Accelerate the learning and startup curve (saving them $$$)
- Reduce downtime
- Improve efficiencies
- Reducing excessive or unnecessary service calls

By providing the highest quality training, and ensuring their staff can apply the training, along with accurate and timely documentation…

YOU MAKE A DIFFERENCE!

For End Users

Just as it is important for OEMs to know their resources and training capabilities, it is good for you to identify your training requirements/specs. By sharing this information upfront they will be able to meet your needs more effectively.

On page 48-55 there are samples of a training Request for Proposal and a Spec Sheet, as well as templates for both in Section 7.

For a sample of a Training Request for Proposal (RFP) and spec sheet templates go to http://groups.google.com/group/trainingCOP - look under “Files.”
Vision:
To design and develop packaging equipment that keeps its customers competitive and on the leading edge through the use of progressive technology and its adaptability by the end user.

Mission:
Our mission is to build high quality, technologically advanced, reliable equipment and provide the flexible service that supports it. We operate on the premise that our customer is our partner and their success is ours. We believe that providing equipment alone is not enough. To ensure the reliability of our equipment, accurate, comprehensive and timely documentation and effective training is KEY to its ongoing efficiency.

By offering the highest quality services, we feel we can help you:
- Increase productivity and efficiencies
- Reduce downtime
- Develop internal capacities
- Reduce cost due to excessive and unnecessary service calls

Training Recommendations
To have the most effective training possible we recommend:
- You discuss training needs with us during the project planning stages.
- You develop a project training budget to be included in your Capital Appropriation Request.
- You assign someone as the primary training contact to coordinate these important steps for the success of the project.
- You develop your internal training capacities by selecting internal trainers that we can work with. They can then do the follow-up reinforcement training when needed. (We will be happy to work with them to develop the technical skills needed to support this equipment.)
- We identify training objectives, measurable goals and a follow-up training plan together.
- You check into training grants to help fund your project training.
Training Approach
1. A Training Needs Assessment will be completed during the budgeting phase. The Needs Assessment will help us to understand the following:
   • The current skill level of your employees
   • If pre-training skills will be required (ex. Basics of PLC’s, keyboarding, etc.), before our technical training can be conducted
   • How many employees of each classification will be needing training
   • What type of training documentation you want
   • If materials are needed in languages other than English
   • If there are any union guidelines that need to be considered
   • What internal capacities (like internal trainers) you have that we can partner with
2. Once the needs assessment is completed a budget and proposal will be developed.
3. After approval of the budget and proposal, a P.O. will need to be approved prior to the start of the project.
4. Specific course outlines explaining course content, recommended class times and learning objectives will be provided once your needs are identified.

Documentation Approach (for training)
1. Once the scope of the project is defined, we will assign an instructional designer to prepare the materials, if customization is needed.
2. Project status reports will be submitted on a weekly basis and drafts of the materials will be supplied for approval at various points during the development process.
3. We will consult with you to ensure we reinforce your safety guidelines and any other procedures that are important to you.
4. Often the operating procedures are just being developed if your equipment is a custom product. In this case, we constantly will be updating it for accuracy. We may request your technical staff’s assistance during this process.
5. We will prepare our training documentation in a WORD format and provide an electronic copy. Documentation is available as either hard copy, floppy disk, DVD, CD ROM and/or Internet access formats.
6. We will show you samples of current materials so you are clear on what content and format we will be using.

Services
The following represents a list of services we offer. If your company requires additional support, please contact us to discuss your needs.

Trainers/Training
• PMMI Certified Trainers
• Onsite training
• Training at our location (prior to installation) or during FATs
• Coordination with your internal trainers
• Follow up training and/or training plan to reinforce learning
• Bi-lingual instructors
Documentation

- Installation Manual
- Daily Operation and Maintenance Manual
- Mechanical Maintenance and Overhaul Manual
- Electrical Service Manual
- Software and Controls Manual
- Training Guides and/or Manuals
- Instructors Manual
- Job Performance Aids (JPAs)
- Translation Services

Our goal is to work as PARTNERS with your company to ensure the highest level of success for the ongoing reliability of your equipment.

Pricing Structure

Trainer Fee

- $100/hour contact time
- $50/hour - Travel rate

Material Development (if custom material is required)

- $65/hour
- Or priced by project
- Translation cost - $60/hour

Manual Cost (if already prepared)

- $20 per manual (2 available free of charge)

Travel & Expenses

- All travel expenses will be billed at actual costs.

For more details and specific course outlines please contact our training manager directly:

David Venezuela
Progressive Packaging Equipment
555-333-7070
555-333-7078 (fax)
venezuelad@ppe.com

HINT

To download brochure Templates you can use Publisher software or Microsoft Word. To use Word, just go to “File,” then to “New.” Select “Brochure” and “download” if you are using Word 2007, go to “Templates” on the right hand side and type “brochure,” if you are using Word 2003/XP 3.0.
Template – Brochure Worksheet

This worksheet will help you to begin to create your own Training and Documentation Brochure. (You can add training philosophy, procedure and any other information that can be helpful to your customer.)

Company Mission

Company Vision

Documentation Services

___ Installation Manual
___ Daily Operation and Maintenance Manual
___ Mechanical Maintenance and Overhaul Manual
___ Electrical Service Manual
___ Software and Controls Manual
___ Training Guides and/or Manuals
___ Instructors Manual
___ Job Performance Aids (JPAs)

Format Options (List the platform/software you use)

___ Hard Copy
___ Floppy Disk
___ CD Rom
___ Internet
___ DVD
___ Other:

Training Services

___ PMMI Certified Trainers
___ Onsite training
___ Training at our location (prior to installation)
___ Coordination with your internal trainers
___ Follow up training and/or training plan to reinforce learning
___ Other:
Pricing Structure

Trainers Fee:
  Contact Fee:
  Travel Fee:

Material Development:
  Per Hour:
  By Project:
  Translations Cost:

Manual Costs:

Travel & Expenses

Contact Information
Training Contact:
Phone:
Fax:
Cell Phone:
Email address:
Mailing Address:
Begin With the End in Mind

The Technical Brochure Format

The brochure just shown was an informational format that contains good general information. Another option, often preferred by customers, is the **technical** format which provides very specific information about the training content. If done in a three-fold brochure, one side can still allow you to provide some of the general information, such as Vision, Mission, Training Services and Contact information (similar to the informational format), but the inner sections will provide the details a customer needs to do effective planning for their training.

You may be thinking that the details might be different for each product line and to do individual ones for each would be costly. That is very true, but you could take the most often purchased product and prepare the details based on that, then note in the brochure that these are general training recommendations that would be customized to meet their company’s needs. As you look at the detailed information, you’ll notice that it is similar to a **course overview** discussed in Section 4 of this workbook. Since pricing may vary, I would suggest that you don’t add prices (unless you are sure they won’t change) but include your service pricing list along with it. That offers you more flexibility. The components of the inner side of the technical brochure are as follows:

(A sample follows)

**Template – Technical Training Brochure Content**

*(Inner pages of a three-fold brochure)*

**Course Offerings Overview**
This space allows you to give the basic information about what this brochure is for. Things like a general introduction, customization options, follow-up and evaluation procedures are just a few items that can be included.

**Operator Training (Time)**
- Class size
- Prerequisites
- Course Content
- Evaluation Procedures

**Mechanic Training (Time)**
- Class size
- Prerequisites
- Course Content
- Evaluation Procedures

**Electrical/Electronic Training (Time)**
- Class size
- Prerequisites
- Course Content
- Evaluation Procedures
Course Offerings

The following course descriptions have been developed to prepare your staff to effectively and safely operate and maintain the investment that you have made in your new packaging equipment. We are happy to customize as needed to support your specific application and internal skill sets. Performance checks will be administered during each session to measure the participants’ ability to perform the tasks taught. A training recommendation for follow-up will be provided at the conclusion of the training, encouraging the use of your internal trainers to support the process. Specific pricing is available upon request.

Operator Training (1 Day)
Maximum Class Size 3-5

Prerequisites:
- Prior packaging experience
- Ability to read and navigate a panel view screen (HMI)

Course Content:
- Equipment Overview
- Safety Procedures
- Parts & Function
- Operator Controls
- Operating Procedures
- Basic Troubleshooting
- Cleaning Procedures

Upon completion operators will be able to safely perform the basic operations of the equipment, navigate and respond to the panel view screens, troubleshoot basic problems and keep the equipment clean, using good sanitary procedures.

Effective Training Will:
- Reduce downtime and waste
- Increase efficiencies
- Reduce cost due to excessive and unnecessary service calls

Mechanical Training (2 Days)
Maximum Class Size 3

Prerequisites:
- Prior mechanical maintenance of high speed packaging equipment
- Ability to navigate a panel view screen for both daily operation and troubleshooting
- Prior servo experience is preferred

Course Content:
- Safety Procedures
- Machine Parts and Function
- Machine Operational Theory
- Machine Controls
- Operating Procedures
- Troubleshooting and Diagnostic Procedures
- Machine Adjustments and Calibrations
- Changeover Procedures
- Preventative Maintenance Guidelines
- Lubrication Procedures

Upon completion the mechanic will be able to safely operate, troubleshoot and repair the equipment independently and/or with the use of the equipment reference materials and the troubleshooting screens.

In our preparation for your unique training needs we will always begin by completing a training NEEDS ASSESSMENT and then prepare a detailed TRAINING PROPOSAL.

Electrical/Electronic Training (3 Days)
Maximum Class Size: 3

Prerequisites:
- Prior electrical/electronic experience on high speed packaging equipment
- PLC Experience/Programming a PLUS
- Servo Experience
- Prior experience in troubleshooting control systems preferred

Course Content:
- Machine Safety Procedures
- Machine Adjustments
- Programming Changes
- Changeover Procedures
- Electrical/electronic component calibration and testing, troubleshooting, repair and replacement
- PLC controls architecture and strategy
- PLC component calibration and testing, troubleshooting, repair and replacement

Upon completion the electrical staff will be able to safely troubleshoot and repair the control systems of this equipment with the use of a troubleshooting computer.
(FOR END USERS)

Training & Documentation Specifications

To assist you in understanding our technical training and documentation requirements, the following chart has been prepared. It lists specific components and the recommended guidelines for each. This would be developed by end users.

<table>
<thead>
<tr>
<th>Component</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLANNING</td>
<td></td>
</tr>
<tr>
<td>Training Overview/Outlines</td>
<td>Training Outline/overviews should include course title, time, number in class, prerequisite skills, topics to be covered, evaluation procedures and any special requirements for the class. <strong>There MUST be a course overview for each group (ex. Operators, mechanics, etc.) to be trained.</strong></td>
</tr>
<tr>
<td>Needs Assessment</td>
<td>Vendors should conduct a needs assessment with the training contact to ensure the training meets our needs.</td>
</tr>
<tr>
<td>Terms of Agreement (Partnership Agreement)</td>
<td>Training contact and vendors should discuss and put in writing the expectations of one another, joint expectations, specific goals and how to handle any confusion/conflict during training.</td>
</tr>
<tr>
<td>Proposal</td>
<td>A formal training proposal must be presented inclusive of the following items: Project name, learning objectives, deliverables, timeline/schedule, cost, contact information, training overviews. Costs should be itemized by labor hours, T&amp;E and materials.</td>
</tr>
<tr>
<td>Training Schedule</td>
<td>Include a preferred training schedule if you have one. A joint discussion will be conducted before we prepare the final schedule.</td>
</tr>
<tr>
<td>Training Documentation</td>
<td></td>
</tr>
<tr>
<td>Manuals</td>
<td>All manuals should be modular and indexed/tabbed to include only the needed content for the participants for each training group. There should be a cover page with the title and product name, number and a picture; a table of contents and in the information/content described below. Each job classification should have a manual appropriate to their job responsibilities and reading level.</td>
</tr>
<tr>
<td>Job Aids</td>
<td>Job aids may include One Point Lessons, SOPs, job breakdowns, charts etc. They should include a picture and be 1 or 2 pages.</td>
</tr>
<tr>
<td>Troubleshooting Guide</td>
<td>An independent TS guide should be included in the training for use on the line. They should be laminated, small and one should be attached to the equipment. Laminated, spiral bound 5x7 or 6x8 are preferred.</td>
</tr>
<tr>
<td>Sign-in Sheets</td>
<td>Sign in sheets should be maintained and a copy given to the assigned project training coordinator. It should contain title of class, instructor, equipment name, date and time of the class on the top For the participants there should be a space for them to fill in their name, shift, and position. Instructor should fill in completion status, comments and overall follow-up recommendations.</td>
</tr>
<tr>
<td>Reference Materials</td>
<td>All reference material should be included at the end of the book but reference should be noted within the training document as they appear.</td>
</tr>
<tr>
<td>Evaluation Procedures</td>
<td>ALL training should have learning objectives and evaluation procedures to determine the status at the end of the class. This may be a written and/or oral evaluation BUT <strong>MUST</strong> always include a...</td>
</tr>
</tbody>
</table>
Instructor’s Guides
If requested, a trainers manual for internal trainers should include all the content of the normal manuals but also delivery hints, lesson plans and any media to be utilized.

General Guidelines
Material Dates/Authors
The documentation preparation date must always be on the documents provided, as well as the author’s name, if available.

Font Size
Font size for all documents should be no smaller than 12. Suggested fonts include Arial, Garamond, and Tahoma. Do NOT use Times New Roman because it is not as clear as the others mentioned.

Pictures & graphics
Pictures and graphics are important to understanding. Use pictures of the actual equipment being delivered NOT generic ones. Typically there should be one at least every 3 pages, if not more. They should be clear, well labeled (name, arrows) and of high quality resolution.

Binding
If the manuals are long they should be in a 3-ring binder, If they are small they can be a stapled handout or spiral bound.

Electronic Format
Content should be in a Microsoft product, preferably WORD. All hard copy documents should be accompanied by 2 electronic copies.

Icons
Icons should be listed in the beginning of the book with an explanation of each. Safety icons should be in the Harmonized format.

PowerPoint
A copy of any PowerPoint prepared and utilized should be left with the training contact for future use/reference.

Definitions
A definition of terms and parts of equipment should be included in the front of the book. A labeled reference picture should also be present.

Instructor/Delivery
Instructor
Instructors should be experienced on the equipment and preferably be PMMI certified. Instructors should NOT be attempting to install and train at the same time. A dedicated trainer is much more effective.

Delivery Methodology
Delivery should stress “hands-on” – typically a 80/20 rule applies. (80% hands-on, 20% classroom)

Certification
If available, a certificate of successful completion should be prepared for each participant.

Course/Instructor Evaluation
A class feedback sheet should be administered for each class delivered. A copy should be left with the training coordinator.

Follow Up Recommendation
The class instructor should meet with the training coordinator and discuss follow up recommendations. It should be both verbal and written.

Documentation
Component | Requirements
--- | ---
Cover | Cover should include the name of the class, a picture of the exact equipment, the name and model number and the document date/author.
Introduction | Introductory information should include: Table of contents, terms/definitions, picture of the equipment with labeled parts
and an arrow showing the product flow.

<table>
<thead>
<tr>
<th>Instruction</th>
<th>Specific learning objectives should be included in the front of the manual/training.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Specific Content</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Operators</strong></td>
<td></td>
</tr>
<tr>
<td>Product Overview</td>
<td>An overview of the equipment including the appropriate level of “theory of operation” with pictures showing product flow should be included.</td>
</tr>
<tr>
<td>Safety – Features, precautions and procedures</td>
<td>Safety should be at the beginning of the session and reinforced throughout the training. It should include, safety icons/symbols, practices/procedures, LOTO, PPE, alarm codes etc. The icons should reoccur throughout the manual, as appropriate.</td>
</tr>
<tr>
<td>Theory/Sequence of Operation</td>
<td>This should be appropriate to the group to be trained.</td>
</tr>
<tr>
<td>Operating Procedures</td>
<td>These are critical to an effective manual. Participant’s should have the opportunity to practice these on the equipment and then demonstrate them to the instructor to ensure the skills have been learned. Performance checks are key.</td>
</tr>
<tr>
<td>HMI Navigation</td>
<td>Labeled HMI screens should be included in the manual.</td>
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<tr>
<td>Alarm Codes</td>
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<tr>
<td>Troubleshooting</td>
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<tr>
<td>Cleaning Procedures</td>
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<td>Basic Robotic Theory</td>
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</table>
# Training & Documentation Specifications Template

To Equipment Vendors: To assist you in understanding our technical training and documentation requirements, the following chart has been prepared. It lists specific components and the recommended guidelines for each. If you have questions or need clarification please contact: the training contact provided.

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<td>Proposal</td>
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<td>Performance Qualification Sheet</td>
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<td>Instructor’s Guides</td>
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<tr>
<td><strong>General Guidelines</strong></td>
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<tr>
<td>Document Submission Timeline</td>
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<tr>
<td>Revisions</td>
<td></td>
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<tr>
<td>Material Dates/Authors</td>
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<td>Font Size</td>
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<td>Pictures</td>
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<td>PowerPoint Presentations</td>
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</tr>
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<td>Definitions</td>
<td></td>
</tr>
</tbody>
</table>
## Instructor/Delivery

- Instructor
- Delivery Methodology
- Learning Objectives
- Course/Instructor Evaluation
- Certification
- Follow Up Recommendation

## Documentations

<table>
<thead>
<tr>
<th>Component</th>
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</table>
Developing a Training Estimate

One of the first things your customers have to do to get their project approved, to actually purchase your equipment, is to develop a Capital Appropriation Request (CAR). In this document, the project manager must prepare an estimate of the costs of the project along with the benefits and return on their investment to justify the expense. They typically focus on the technical expenses but often just make a quick estimate on the training cost, or they may not even have a line item for it. This will definitely come back to haunt everyone when it comes around to effective training.

You may or may not have to support your engineers with this information but here are a few do’s and don’ts on how to prepare a training estimate. A worksheet will follow.

**HINT**

**Don’t…**
- Don’t assume the $$’s budgeted for training will be adequate.
- Don’t use a generic number of participants x number of hours.
- Don’t guess at the number of people to be trained.
- Don’t forget about shift issues, which may cause a duplication of training sessions.
- Don’t be conservative in your estimates – always allow for the “extra” or repeat training that is needed.

**Do…**
- Ask your customer to participate in completing a Needs Assessment. This is critical to preparing an accurate training proposal.
- Ask if there are any union issues that could interfere with the training scheduling (ex. Not being able to train on shifts other than their own).
- Have a good breakdown of the amount of training hours needed to train each group. (ex. Electricians will take 2 days, operators 4 hours etc.) This will help you to develop an estimate quickly.
- Clarify the type of documentation that the customer wants for training. This can add a significant cost to the budget.

Training Proposal

You will probably be requested to submit a separate training proposal to your customer. The next four pages will give you a template to work from plus a sample proposal.

**Cultural Note:**
Mexico and South American cultures prefer to negotiate cost face to face so they would not like seeing prices presigned on a proposal.
ABC Company
Training Proposal
Date:                      Customer Name

Project*:  
Project name or just the equipment name/number

Proposal Scope*:  
The range of the total training project—this may include things like needs assessment, course design/development, documentation development, training sessions, evaluation, coordination, etc.

Background:  
You may or may not need to include this section. This typically includes the context of the training—why it is needed, what prompted it, etc. This is also your way of clarifying what you heard the customer wants. The target project dates can be included here too.

Approach:  
You may have a certain approach to training that is important to share with the customer. Ex. All training is held at the vendor’s training center, delivered with internal Subject Matter Experts (SME)/trainers etc.

Deliverables*:  
This is the list of tangible items that will be provided to the customer, including the specific training, documentation, etc. It’s an excellent idea to attach sample course overviews with the proposal to give the customers more details. If you don’t do this with the proposal, it should be discussed during the sales discussion or sent once you identify their specific needs.

Timeline*:  
This shows when each of the deliverables will happen. In the case of documentation there would be draft, validation and completion dates.

Cost*: (You might want to title this “Investment” instead)
List the specific cost per deliverable plus the total overall cost. NEVER just send a service fee schedule because it doesn’t tell your customer the cost of the training for the project.

Projected Results:  
Describe what the projected outcome will be.

Responsibilities:  
List what they can expect from you plus special requirements you may need like a training contact, access to SME’s to develop the materials, data projector, etc. If you do a partnership agreement this may not be necessary. BUT, if you don’t do a partnership agreement it’s a great place to put this type of information—your responsibilities, their responsibilities.

*These components MUST be included in any proposal
Example – Writing a Training Proposal
(Sample Proposal)

ABC Company
Date: 1.2.2008

CAWALL Company

Project: Four (4) NBC Wrappers for Line #6 — Project is referred to as Oswald

Proposal Scope:
The scope of this project is to develop and deliver a comprehensive training program for the Line 6 staff of operators, mechanics, electricians and electronic technicians; including a needs assessment to verify specific training needs, delivery of training, the development of training documentation and evaluation procedures to support the training. Projected startup date is August 15, 2008.

Background:
The Cawall Company has recently gone into a focused 5 Year equipment upgrade process. Line #6 is the first line to be upgraded and Cawell is looking to set training standards during this initial project that can be adapted to all the other new equipment installations in this process. Since most of the current equipment is not technologically sophisticated a needs assessment is critical to help identify the “pre-training” that will be required before the actual new equipment training occurs. (Ex., PLC basics, panel view controls, keyboarding, etc.) Cawall has assigned a person fulltime to work on just training, which will be extremely helpful to ensure support during the process.

Approach:
Our approach to training is to discuss the details of what is expected of one another at the beginning of the project. We do this by building a “partnership agreement” once the project has been awarded to us. We also feel strongly about the importance of the “Needs Assessment”, which will require access to the appropriate staff members. We also prefer to develop your internal trainers/subject matter experts so that they can reinforce and maintain the training once our staff has completed their part of the project.

Deliverables:
• A “Needs Assessment” document
• Summary report of the needs assessment with recommendations
• 2 day training sessions (3) for the mechanical and electrical staff—one per shift
• 3 day training for the electronic technicians
• 1 day training session for the operators
• Individual evaluations of participants
• A customized maintenance manual, operator’s manual, job aids, performance checks and a course evaluation
• A feedback and next step recommendation report
Timeline:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Responsibility</th>
<th>Target Start Date</th>
<th>Target Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needs Assessment</td>
<td>ABC—conduct needs assessment</td>
<td>June 1</td>
<td>June 7</td>
</tr>
<tr>
<td></td>
<td>Cawall – Training Contact and appropriate staff involvement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training Developed</td>
<td>ABC—design</td>
<td>June 10</td>
<td>July 1st</td>
</tr>
<tr>
<td></td>
<td>Cawall – review, approve</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training Sessions and Performance Checks (PCs)</td>
<td>ABC—deliver, evaluate Cawall—Identify participants, logistics and assist with PCs + follow up</td>
<td>July 21</td>
<td>July 31</td>
</tr>
<tr>
<td>Final feedback and Recommendations</td>
<td>ABC Co.—Recommend follow up</td>
<td>August 3rd</td>
<td>August 5th</td>
</tr>
<tr>
<td></td>
<td>Cawall – Discuss, review recommendations</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Your Investment (Cost):

- Needs Assessment (10 hours @$100) $1000
- Training Development (40 hours @ $75) $3000
- Training Delivery (3 weeks @ $5000) $15,000
- Travel and Expenses Est. $4000
- Manuals (50) @$25 = $1250

Total Estimated INVESTMENT = $24,500

PROJECTED RESULTS:

- Improved startup
- Trainees capable of independently operating and maintaining the equipment
- Reduction in downtime
- Accelerated startup curve

NOTES:
Responsibilities:

**ABC Company will be responsible for:**

- Providing a detailed proposal
- Working with the assigned training contact for all visits, staff coordination, etc.
- Notifying the training contact of any materials or logistics needed
- Verifying that access to power and on-the-line training has been adequately scheduled
- Conducting the training and individual evaluations
- Supporting the schedules provided by Cawall Co.
- Providing all training documentation in hard copy and electronic format
- Providing follow up recommendations

**Cawall Company will be responsible for:**

- Providing a training contact
- Scheduling and all logistics required
- Identifying and sending the appropriate participants
- Providing the “pre-training” required
- Notifying the participants, and their management, of classes (time/ location)
- Providing adequate training space both classroom and on-the-line
- Providing a P.O and timely invoice payment
- Addressing any union issues related to training
- Discussing follow up training recommendations with OEM, supplier and/or Integrator

*If you have any questions please contact:*
Sam Lowinso
555-666-7890
555-666-7899 (fax)
sam.lowinso@abcco.com
Dear Equipment Vendor,

We are pleased that …..has selected your equipment as an important component of the XYZ project at the XXXXX facility, and look forward to working with you.

We know that aside from the technology you will be supplying us, we will need your training to give our staff the skills to effectively operate, maintain and repair it.

To help you understand our training proposal requirements we are sending you:

- An overview of training requirements
- The training proposal format
- Basic training requirements
- Course overview information needed
- General proposal information
- A site information sheet for the location where the training will be conducted. This will help you in your preparation of the proposal.

We would like your proposal submitted by ……………………

If you have any questions please don’t hesitate to contact ……………………

We look forward to hearing from you and reviewing your training proposal.

Best Regards,
Training

Capital Projects

Building Value through Our Training Partnership
Capital Project Training
Request for Proposal
Training Requirements
(Co. Name)

... believes that a key to successful equipment start-ups is effective training. We both have the same goal — RELIABLE EQUIPMENT— and need to work together as partners to provide the solid foundation that effective training provides. To help you understand what our training requirements are, for this project, we are sending you these training proposal guidelines.

**Step 1: Training Proposal Format:**
The following information should be included in your training proposal:
(You may need to do a Needs Assessment with us to provide this accurately; Attached is a basic site information sheet to get you started.)
- Project Training Scope
- Deliverables*
- Timeline
- Cost— Training hours plus Training Materials/Documents
- Training Contact Information

*Deliverables will include the actual training and any training materials/documentation required. To budget adequately we also need the information below.

**Step 2: Training Requirements**
To budget sufficient resources we need this additional information:
**COURSE OVERVIEWS**, for each job classification to be trained, that include: (ex, operators, mechanics, electricians, ETs, stationery engineers):
- target audience,
- time required for each course,
- number of participants that can attend,
- prerequisite skills required,
- topics to be covered (you may want to include an outline)
- trainee and class evaluation process
- Any special needs that you have to conduct the training
### (Co. Name)

**Capital Project Training—Request for Proposal**

<table>
<thead>
<tr>
<th>Project Name:</th>
<th>Address:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Number:</td>
<td>Training Contact Phone:</td>
</tr>
<tr>
<td>Project Location:</td>
<td>Fax:</td>
</tr>
<tr>
<td>Project Manager:</td>
<td>Cell:</td>
</tr>
<tr>
<td>Training Contact:</td>
<td></td>
</tr>
</tbody>
</table>

**Training Scope:**

**Training Deliverables:**

**Projected Results:**

#### Training Timeline

<table>
<thead>
<tr>
<th>Training:</th>
<th>Training Materials/Documentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Would you consider training at your site or during the FAT (Factory Acceptance Test)?</td>
<td></td>
</tr>
</tbody>
</table>

#### Training Cost

<table>
<thead>
<tr>
<th>Labor Hours for Training: (plus OT hours)</th>
<th>Training Materials/Documentation Cost:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Travel &amp; Expenses:</th>
</tr>
</thead>
</table>
# Course Overviews

Please complete a course overview for each job classification to be trained. You may also want to include a course outline. This will help us to budget our resources properly, as well as prepare our trainees if pre-training is required.

<table>
<thead>
<tr>
<th>Equipment Name</th>
<th>Course Overview</th>
</tr>
</thead>
<tbody>
<tr>
<td>Targeted Audience</td>
<td>Length of Class:</td>
</tr>
<tr>
<td>Class Size:</td>
<td>Prerequisite Skills:</td>
</tr>
</tbody>
</table>

Topics to be covered:

Evaluation Procedures (Course and Individual Performance)

Requirements:

**Instructor:**

Is the instructor PMMI certified?
Instructor Qualifications: (You may also attach a resume)
Your training proposals must contain the information requested.

- We know that you will base your bids on the best information you have at the time of our request. We encourage you to take the time to do a “needs assessment” with the appropriate training contact to ensure accuracy. The site information sheet should be a helpful start for you.
- We will give you a date that the proposal is due. If for any reason you are not able to meet that deadline we need to be notified as soon as possible. Your proposal will be important to our budgeting process. If amendments are required at a later date we will ask you to submit them in writing.
- All proposals should be on your company’s letterhead. Address the proposal to…………………..
- It’s not mandatory that you use the attached forms but you MUST include the required information in whatever form you use.
- Please include a current rate schedule with your quote to support the training cost you have listed. (DO NOT submit this schedule without a detailed cost estimate on your proposal. We expect you to put this together.)
- We believe effective training is essential to the success of the project. Evaluation is a key way to measure effectiveness. Your evaluation process should be clearly defined in your course overviews.
- If you need any additional information to complete this please contact the Training Contact listed on the Site Information Sheet.
## Location Site Overview

### General Information

<table>
<thead>
<tr>
<th>Project Name:</th>
<th>Project Number:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Manager:</td>
<td></td>
</tr>
<tr>
<td>Targeted Start-up Dates:</td>
<td></td>
</tr>
<tr>
<td>Training Contact:</td>
<td>Department:</td>
</tr>
<tr>
<td>Address:</td>
<td></td>
</tr>
<tr>
<td>Phone:</td>
<td>Fax:</td>
</tr>
<tr>
<td>Cell phone:</td>
<td>Cell Phone:</td>
</tr>
</tbody>
</table>

### Training Participant Numbers

<table>
<thead>
<tr>
<th>Job Classification</th>
<th>1&lt;sup&gt;st&lt;/sup&gt; Shift</th>
<th>2&lt;sup&gt;nd&lt;/sup&gt; Shift</th>
<th>3&lt;sup&gt;rd&lt;/sup&gt; Shift</th>
<th>Educational level (approx)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operator</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mechanic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrician/ET</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stationery Engineer</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Supervisor or Internal Trainer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Additional Comments About Participants: (Language needs, past experience with this type of equipment, union issues, use of internal trainers, etc.)
Training Documentation Requested:

___ Training Manuals
___ Job Aids
___ Troubleshooting Guides
___ Instructor's Manual

Special Needs:
Language Requirements - 
Educational Levels -

Format:
Electronic Platform_________
DVD ________
CD ROM ______
Website assessible ______

Available Resources: (at this location)

___ Training Room
___ Flip Charts
___ Data Projector/screen (markers, masking tape)
___ Pencils/paper ______ VCR/TV
___ White/chalk board
___ Access to copy machine (if needed)
___ Access to equipment (MUST be prearranged)
___ Internal trainers

Other:

Partnership Responsibilities

We understand that to reach the full benefit from your training we need to work hand-in-hand with you. We’d like to establish the following with you to make that possible:

• Your expectations of .......
• ....’s expectations of you
• Joint responsibilities
• Targeted goals
• Methods of resolving issues that arise

......s training resource will be in contact with you to discuss these.

We look forward to a productive training partnership and a successful start-up!
Training Needs Assessment

A “needs assessment” is a critical part of the training process.

**We do one to:**

- Identify what specific training is needed
- To help us prepare better
- To gather the information needed to write an accurate training proposal

**It’s a good idea to:**

- **Make your customer aware you will be sending them a Needs Assessment Form at the beginning of the project.** Assure them it won’t take long to fill out and that it will enhance the training efforts tremendously. Ideally send them the Needs assessment with a cover letter saying you’ll call to discuss the content. Few people will spend the time filling out the form adequately so make it easy for them with your follow-up call. Since they will have the form ahead of your call, you should be able to complete the discussion quickly. (Very few vendors do this, so it will give you a leading edge.)

- **Identify the person who is interested in training for this project and has responsibility for the coordination of it.** This may not be a project engineer. It may be an internal resource person from human resources, maintenance or production. Too often the coordination of training is perceived as just “another thing to do” and not necessarily something they want to do. The ideal is that the customer has an internal training coordinator that you can partner with during the entire project. This will make your job go much smoother and help eliminate most of the typical issues that come up.

- **Find out if the customer has internal trainers, or subject matter experts who may be hourly or salaried.** If they do, work with them throughout the training involvement. This is a great asset!

- **Make your customer aware of the possibility of attaining training grants to help fund the training.** (Give them a copy of pages 70-71). Do this early so they have time to apply.

With those recommendations in mind, the following sample Needs Assessment can be used. Of course, it should be customized to reflect your company’s procedures and needs.
Training Needs Assessment

To effectively develop a customized training program for your staff we’d like to identify the following information:

<table>
<thead>
<tr>
<th>Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company Name:</td>
</tr>
<tr>
<td>Address:</td>
</tr>
<tr>
<td>Project Manager:</td>
</tr>
<tr>
<td>Phone Number:</td>
</tr>
<tr>
<td>Cell:</td>
</tr>
<tr>
<td>Email:</td>
</tr>
<tr>
<td>Anticipated Training Dates:</td>
</tr>
</tbody>
</table>

Participant Profile: How many will be participating in the training?

<table>
<thead>
<tr>
<th>NUMBER OF EMPLOYEES TO BE TRAINED</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TYPE</strong></td>
</tr>
<tr>
<td>Operators</td>
</tr>
<tr>
<td>Mechanics</td>
</tr>
<tr>
<td>Electricians</td>
</tr>
<tr>
<td>Electronic Technicians</td>
</tr>
<tr>
<td>Stationary Engineers</td>
</tr>
<tr>
<td>Supervisors</td>
</tr>
<tr>
<td>Other:</td>
</tr>
</tbody>
</table>

**Internal Trainers**

Do you have Internal Trainers?

Would they be able to assist with this training?

Would they be able to come to our plant for pre-training? For the FAT?

Are you interested in a train-the-trainer session?
**Current Technology:**
- Do you currently have any of our equipment on your production floor? If yes, what? Where is it?
- Have any of the trainees had any training or experience on this equipment, or a similar one?
  If so how much? (none, 0-6 months, 6 months – 1 year, more than a year)
  Operators ____________ Mechanics ____________ Electricians ____________

**New Technology:**
To the best of your knowledge, is there any technology on our equipment that is new to those that will be trained?
If yes, what is it?

**Current Skill Level**
Thinking of the current skill level of the employees to be trained please provide us with an estimate of their current skill level, using this guide:

*Unknown* – Uncertain about the participants skill level

*Level 1* – Low skill level – need to start with the basics; little to no prior experience

*Level 2* – Good Basic level – Have some prior packaging experience need only the specific of the equipment

*Level 3* – High skill level – Have solid experience with similar equipment before

<table>
<thead>
<tr>
<th>Job Classification</th>
<th>Ununknown</th>
<th>1-Low</th>
<th>2-Basic</th>
<th>3-High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operators</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mechanics</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Electricians</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electronic Techs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Skill Gaps:**
What would you say are the biggest skill gaps we’ll encounter?

**Cultural Changes:**
Are there any cultural changes happening that we should be aware of?

**Training Grants:**
Do you currently have a training grant?
Are you interested in learning more about obtaining one?
Do any participants have special needs that require accommodations? If so, what?

Language:
Do all participants speak English? Read English?
If not, what language is spoken?
Will materials need to be provided in other languages? Explain.

Available Resources:
Please check off the facilities and training equipment that you have available for our training:

- [ ] Classroom
- [ ] Technical Learning Lab
- [ ] Data Projector/screen
- [ ] White or Chalk Board
- [ ] Flip Charts
- [ ] Access to the powered equipment during training
- [ ] Product for the equipment

Training Goals/Expectations
To clarify training expectations, and support the success of this project, we'd like you to help us identify:

- Your expectations of us
- Our expectations of you
- Targeted training goals
- Follow up strategy

Who would be the best person to discuss this with?

Name: ____________________________
Title: ____________________________
Phone Number: ____________________
Email: ____________________________

Contact Information:
Name
Email address
Phone
Cell phone
Fax

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Training Needs Assessment

To effectively develop a customized training program for your staff we’d like to identify the following information:

<table>
<thead>
<tr>
<th>Project</th>
<th>Training Contact: Andy Guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company Name: Eco Magic Packaging</td>
<td></td>
</tr>
<tr>
<td>Address: 5389 Harrison St. Chicago, IL 60606</td>
<td>Location for Training: Manufacturing Plant at same address</td>
</tr>
<tr>
<td>Project Manager: Jon Horman</td>
<td>Training Contact Phone: 773-564-2111</td>
</tr>
<tr>
<td>Phone Number: 773-564-2001</td>
<td>Fax: 773-565-5666</td>
</tr>
<tr>
<td>Email: <a href="mailto:jhorman@ecomagic.com">jhorman@ecomagic.com</a></td>
<td>Email: <a href="mailto:aguidance@ecomagic.com">aguidance@ecomagic.com</a></td>
</tr>
</tbody>
</table>

Anticipated Training Dates: January 18 – 23, 2009

Participant Profile: How many will be participating in the training?

<table>
<thead>
<tr>
<th>TYPE</th>
<th>1ST SHIFT</th>
<th>2ND SHIFT</th>
<th>3RD SHIFT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operators</td>
<td>15</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Mechanics</td>
<td>10</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Electricians</td>
<td>8</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Electronic Technicians</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Stationery Engineers</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Supervisors</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Other:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Internal Trainers

Do you have Internal Trainers? Yes

Would they be able to assist with this training? Maybe

Would they be able to come to our plant for pre-training? Depends where it is

Are you interested in a train-the-trainer session? Not sure, tell me more about what that entails
**Current Technology:**
- Do you currently have any of our equipment on your production floor? If yes, what? Where is it? **Yes, but it is very old**
- Have any of the trainees had any training or experience on this equipment, or a similar one? **SOME**

If so how much? (none, 0-6 months., 6 months – 1 year, more than a year)
Operators: 0  Mechanics: 6 – 1 year  Electricians: 0

**New Technology:**
To the best of your knowledge, is there any technology on our equipment that is new to those that will be trained? **I am not sure**
If yes, what is it? **Perhaps Servos and Robotics**

**Current Skill Level**
Thinking of the current skill level of the employees to be trained please provide us with an estimate of their current skill level, using this guide:

**Unknown** – Uncertain about the participants skill level  
**Level 1** – Low skill level – need to start with the basics; little to no prior experience  
**Level 2** – Good Basic level – Have some prior packaging experience need only the specific of the equipment  
**Level 3** – High skill level – Have solid experience with similar equipment before

<table>
<thead>
<tr>
<th>Job Classification</th>
<th>Unknown</th>
<th>1-Low</th>
<th>2-Basic</th>
<th>3-High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operators</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mechanics</td>
<td></td>
<td>x</td>
<td></td>
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</tr>
<tr>
<td>Electricians</td>
<td>x</td>
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<tr>
<td>Electronic Techs</td>
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<td>x</td>
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</tr>
<tr>
<td>Others:</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**Skill Gaps:**
What would you say are the biggest skill gaps we’ll encounter?
**Operators**

**Cultural Changes:**
Are there any cultural changes happening that we should be aware of?
**There will be job eliminations**

**Grants:**
Do you currently have a training grant? **NO**
Would you be interested in learning how to get one? **YES**

**Special Needs:**
Do any participants have special needs that require accommodations? If so, what? Yes

Language:
Do all participants speak English? NO
Read English? NO
If not, what language is spoken? Spanish
Will materials need to be provided in other languages? Explain. Manuals

Available Resources:
Please check off the facilities and training equipment that you have available for our training:
- X Classroom
- Technical Learning Lab
- Overhead Projector
- Data Projector/screen
- Flip Charts
- White or Chalk Board
- Access to the powered equipment during training
- Product for the equipment

Training Goals/Expectations
To clarify training expectations, and support the success of this project, we’d like you to help us identify:
- Your expectations of us
- Our expectations of you
- Targeted training goals
- Follow up strategy

Who would be the best person to discuss this with?

Name ______________________________
Title ______________________________
Phone Number _______________________
Email ______________________________

Contact Information:
Name
Email address
Phone
Cell phone
Fax
Technical Training Prerequisite Skill Checklist

Please check off the appropriate box on the right side for each skill listed indicating the current skill level of the trainees.

<table>
<thead>
<tr>
<th>Course Name:</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Skill Levels</strong></td>
<td>No Experience</td>
<td>Some Experience</td>
<td>Solid Experience</td>
</tr>
<tr>
<td><strong>Operators</strong></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td><strong>Mechanics</strong></td>
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<tr>
<td><strong>Electricians</strong></td>
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<tr>
<td>Prepared by:</td>
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<td></td>
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<td>Date:</td>
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<tr>
<td>Revision Date:</td>
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</tbody>
</table>
# Technical Training Prerequisite Skill Checklist

*Please check off the appropriate box on the right side for each skill listed indicating the current skill level of the trainee/s.*

<table>
<thead>
<tr>
<th>Course Name:</th>
<th>Skill Levels</th>
<th>No Experience</th>
<th>Some Experience</th>
<th>Solid Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operators</strong></td>
<td>Safety – Able to perform Lockout/Tagout</td>
<td></td>
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<tr>
<td></td>
<td>Prior experience on packaging equipment</td>
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<tr>
<td></td>
<td>Basic equipment troubleshooting skills</td>
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<tr>
<td></td>
<td>Able to read, navigate and respond to an HMI screen</td>
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<tr>
<td><strong>Mechanics</strong></td>
<td>Safety – Able to perform Lockout/Tagout</td>
<td></td>
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<tr>
<td></td>
<td>Prior experience on packaging equipment</td>
<td></td>
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<tr>
<td></td>
<td>Able to read, navigate and respond to an HMI screen</td>
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<tr>
<td></td>
<td>Basic mechanical equipment troubleshooting skills</td>
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<td></td>
<td>Prior servo experience</td>
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<td></td>
<td>Preventive maintenance experience – completing PMs</td>
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<td></td>
<td>Prior set up, calibration and timing of equipment</td>
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<td></td>
<td>Troubleshooting PLCs through HMI screens</td>
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<tr>
<td><strong>Electricians</strong></td>
<td>Safety – Completed Basic electrical safety Training</td>
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<tr>
<td></td>
<td>Safety – Able to perform Lockout/Tagout</td>
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<td></td>
<td>Prior experience on similar equipment with servos</td>
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<tr>
<td></td>
<td>Able to read, navigate and respond to and troubleshoot using an HMI screen</td>
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<tr>
<td></td>
<td>Able to remove and replace components and/or electrical/electronic devices</td>
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<td></td>
<td>Able to program using…..</td>
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<tr>
<td></td>
<td>Prior setup and calibration experience</td>
<td></td>
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<tr>
<td></td>
<td>Able to read electrical schematics and wiring diagrams</td>
<td></td>
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<tr>
<td><strong>Other:</strong></td>
<td></td>
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</tbody>
</table>

Prepared by:  
Date:  
Revision Date:
Stage Two: Installation and Training

Building a Partnership Agreement
Vendors, Integrators and their customers have the same goal = Efficient, Reliable Equipment

Aside from the technical functioning of the equipment, effective training is one of the most significant ways to ensure high equipment efficiencies. As mentioned earlier, when equipment is down costs mount up exponentially. To support an equipment installation sufficiently representatives from the equipment manufacturer and the customer (and integrator if one is being used) should sit down and discuss their specific expectations of one another, along with their training goals. Here are some of the issues that may need to be discussed:

Some of the constant barriers to good training are:
- Insufficient time, changing schedules
- Wrong people in training
- Distractions – noise, phones, poor training facilities
- Trainees being pulled from class
- Not being able to train on the equipment
- Too many trainees in class
- Poor or no documentation
- Poor communication (internally and externally) around class schedules, participants assigned, overtime arrangements
- Poor or no record keeping
- No evaluation
- No feedback and follow up

These are just a few barriers. On the next page is a template that can easily be used to build a partnership agreement that will save valuable time and ensure higher levels of participation and shared responsibility for learning.

This can be done verbally, face-to-face, or on the phone but either way, the points discussed should be put in writing for future reference.

If an integrator is involved in the project a box should be added to the template.
Template – Training Partnership Agreement

This TRAINING PARTNERSHIP AGREEMENT is between
___________________________ (vendor) and __________________ (customer)
for the success of project ________________________________________.

The purpose of this agreement is to:
• Clarify our expectations of one another (yours, mine, ours)
• Decide how we will resolve issues related to this training partnership
• Set mutual and measurable goals

<table>
<thead>
<tr>
<th>Customer Expectations:</th>
</tr>
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<tbody>
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</table>

<table>
<thead>
<tr>
<th>Vendor Expectations:</th>
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<tbody>
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<td></td>
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</table>

<table>
<thead>
<tr>
<th>Together we will collaborate and be accountable for:</th>
</tr>
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<tbody>
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<td></td>
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</table>

<table>
<thead>
<tr>
<th>In the event that confusion arises over the above we will resolve it by:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Specific and measurable training goals we will commit to:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

Together we have discussed and agreed to this partnership with the purpose of attaining the mutually identified training goals that support the success of the project.

Customer Representative: _________________________________
Vendor Representative: _________________________________
Date: _________________________________

(Often no signatures are required/requested but listing the date of the discussion plus the names of those having the discussion is important!) Having this in writing adds to the commitment of all parties involved. If there is an integrator involved add a section for their expectations.
Example – Training Partnership Agreement

This TRAINING PARTNERSHIP AGREEMENT is between Sydney Packing Manufacturer (vendor) and Sally Soda Bottler (customer) for the success of the four XYZ packing machines project to install.

The purpose of this agreement is to:
• Clarify our expectations of one another (yours, mine, ours)
• Decide how we will resolve issues related to this partnership
• Set mutual and measurable goals

<table>
<thead>
<tr>
<th>Customer Expectations: (of the equipment vendor)</th>
<th>Vendor Expectations: (of the customer)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• A training proposal by…</td>
<td>• Preplanned schedule (we receive a copy prior to arrival), sufficient notice of training requirement (ex. training windows)</td>
</tr>
<tr>
<td>• Training overviews, manuals and Job Aids</td>
<td>• Completion of Needs Assessment</td>
</tr>
<tr>
<td>(need to preview them by) (Details will be discussed further on the content.)</td>
<td>• Plan for follow up training/reinforcement</td>
</tr>
<tr>
<td>• A training schedule to support our startup timeline</td>
<td>• Resolve employee and union issues</td>
</tr>
<tr>
<td>• Qualified trainers</td>
<td></td>
</tr>
</tbody>
</table>

**Together we will collaborate and be accountable for:**
• Training schedule(s)
• Follow-up training plan
• Assessment of trainees learning
• Record keeping for records and OSHA requirements

**In the event that confusion arises over the above, we will resolve it by:**
• Bringing up the specific issue as quickly as possible to the identified training contact and arrange to meet/discuss solution ASAP.
• Bring solutions to meeting – not blame.
• Keep project goals as a prerequisite for solutions.

**Specific and Measurable training goals we will commit to:**
• Allow 2 internal trainers to train at Sydney Manufacturer’s location for designated time. Those trainers will then assist with on-site training and follow-up plan.
• Complete first round of training by…
• Do performance checks on each participant to identify additional training needed.
• Develop a follow-up plan to reinforce learning.

Together we have discussed and agreed to this partnership with the sole purpose of attaining mutually identified training goals that support the success of the project.

Customer Representative ___________________________ Date ________________
Vendor Representative ___________________________ Date ________________
INTEGRATORS–ANOTHER TRAINING PARTNER*

With all the downsizing in companies, staffs have been depleted and left with very lean headcounts. Because of this and the lack of specialized project management and technology skill sets remaining, integrators are often called upon to manage new equipment projects. Many of you have already experienced this transition and how it affects your roles and responsibilities for every portion of the equipment project from equipment selection to installation, commissioning and TRAINING.

The following will help you understand what role Integrators can play and how that can actually enhance your training significantly.

What is a packaging Integrator?

An integrator can design, purchase, install, train and commission a packaging line. They often are referred to as a “one stop shopping” since they can manage and execute a project, be the risk mitigator and tie up all the loose ends. However it’s important to know that not all integrators are the same so here are a few types you should be aware of. You may be working with all of these types.

TURNKEY—Typically this integrator assumes full responsibility for a well defined project objective within a fixed price and time period for a given location. They may supply specific production equipment but more often they are just replicating a line or equipment that already exists. They assume full responsibility for a defined outcome. Change orders and negotiated adjustments are the norm.

SINGLE SOURCE - Single Source refers to an agreement of a pre-determined sliding scale of joint responsibility and shared risks between a single source integrator and the customer. All decisions and information go through a single source contact, but the customer has a pre-determined responsibility and authority in some purchasing and direction adjustments. Single source is best used for new products or new technology lines or HIGH RISK projects. Collaboration and defined areas of responsibility or co-responsibility is the norm.

EXTENSION OF YOUR ENGINEERING DEPARTMENT – This is just what it implies - an integrator is hired to support the engineering department, whether it is for an end-user or an equipment manufacturer or both. It may be that you are short staffed or don’t have a specific expertise needed for a capital project. They may be referred to as a “contract person or source”.

How can they enhance your training?

The good news is that they can be your greatest ally! Many integrators have specialized staff that can review your documents and create new or additional ones; they can take care of “selling” the training and developing a training proposal; they can deliver training with you and/or sit in to ensure everyone has
the chance to “try it out” and get evaluated. They are around at least a month after you leave so they can follow up and recommend additional training if and when needed. The challenge you have, as an end-user or equipment manufacturer is to clarify what they actually do. The ideal approach is to add a section on your partnership agreement for Integrators where expectations are clearly identified. Here are some questions you should be asking if you will be working with an integrator:

### Questions to ask an Integrator about Training

#### Planning Stage

- What type of integrator are you? Turnkey? Single Source? Extension?
- Explain how you define that? (type of integrator)
- Explain what role you will be assuming for the training.
- What are your expectations of us?
- Let’s discuss the partnership components so there are no misunderstandings.
- What materials of ours would you like to see? Will you be developing any training materials? Will you need our assistance?
- Will we be responsible for validating the documentation that you develop to ensure its accuracy? Will we get electronic copies?
- Will you be doing the training “needs assessment”? Will you share that with us?
- Will you develop the training proposal?
- Will you use our course overviews and outlines?
- Will you conduct a safety risk analysis then develop the training for it?
- What are yours and your customer’s outcome expectations from the OEM equipment and training program?

#### Installation & Training Stage

- Will you be arranging the logistics?
- Will you be setting up the training schedules?
- Will you Identify participants and make sure they are dedicated to training?
- Will you assist with the training?
- Will you attend all training?
- Will you assist with the evaluations?
- If there are any problems will you talk to management or will we do that? Do it together? Do we contact you or the customer directly?
- Will you prepare the feedback sheets? Administer them? Share them?
- Will you be responsible for the success of the training?

#### Follow-Up

- Will you be checking up on the trainees to ensure they have learned?
- Will you make the follow-up recommendations?
- Will you do follow-up training or arrange for us to do it?
- Will you provide a follow-up report to management? To us?
- Will you be responsible for the mark-ups and updates of the training materials?

*Information has been provided by Paul Zepf, Director of Engineering for Zarpac, Inc. He may be contacted directly for additional information at pzepf@zarpac.com or to view a Webinar in the archives on the topic go to www.pmmiu.org*
Training Grants

So where is the Money?
Federal, state and local governmental agencies are a valuable source for workplace training grants to help fund your projects. They usually fall under the category of economic development. States are always in competition for new industry as well as retaining their current tax base from industry – big or small! Providing grant money is one way they can do that.

Currently when companies are exploring new sites to start, or to expand their businesses, they frequently look at the educational resources and the geographic profiles that exist in that state or city. This tells them whether, if they were to build or relocate to this area, the education/skills would be available to satisfy their staffing needs. It would be a waste of time and resources to move to an area where they would have to train all the people from scratch. Because of this, states encourage continuous skill upgrading with incentives in the form of grants.

Training Grants are usually available for one or all of the following reasons:
• To attract new industry
• To upgrade the skill sets of a company so they can remain in business
• To help the expansion of a business
• To support a TIF* designated area
• To improve literacy skills

The logic is simple:
• New industry and business expansion brings in new jobs and new tax money – economic development!
• A company that must upgrade their skills to keep up with technology might have to close if there were no financial incentives available, meaning a loss of tax revenue.
• A TIF* area, by definition, is usually an area not conducive to growth. It may be deteriorating or have become an unattractive location for financial reasons (hard to attract workers, poor transportation cost, etc.). Being designated a TIF area brings the infusion of many incentives that will revitalize the area and the business – training dollars for skills upgrade is just one of those incentives.

TIF stands for TAX INCREMENT FINANCING program. It was developed to eliminate blighted conditions found to be present in some industrial, commercial and residential areas. The TIF program provides financial assistance to stimulate private investment in the area, to upgrade it, and attract new development. Not all cities and states have this but may have something similar.

Looking…in all the RIGHT Places
Since each state is different there isn’t just one contact, number, or website with this information. Here are some ideas to get you started
Literacy Grants
These typically cover Adult Basic Education (ABE) classes and English as a Second Language (ESL) classes.
- Department of Education, Washington, D.C.
- State Department of Education
- Secretary of State’s Office
- Community Colleges

General Information about Literacy Grants
These grants usually are small ($1-15K) and are meant to be “seed money” to get a program started. Federal grants are much harder to obtain, but have a higher dollar value. A customer/end-user, with many field locations, has a better chance by applying jointly for federal funding. Likewise, if it is a state grant and all the locations reside in that state applicants have an advantage.

Economic Development Grants
These grants tend to be larger and cover companies’ growth needs, as mentioned on the previous page. Here are some of the most common names and organizations where these grants can be found.
- State/City Department of Economic Development
- Employers/Industrial Training Program
- Your Local Community or Technical College’s Business and Industry Department
- Community Based Organizations (CBOs)
  - Chamber of Commerce
  - Small Business Administration
  - National Alliance of Business
  - Workforce Investment Board

Additional Resources*
Although the above agencies will be your primary resources, you should also consider the many Employers Groups, professional organizations/associations and Not for Profit Community Based Organizations (CBO’s) that are highly skilled in providing customized training. Some recognized CBO’s that may be in your area are Jewish Vocational Services, Urban League, Catholic Charities to mention just a few. Even if they can’t help you, they can usually refer you to additional resources.

One of the best resources is your local Community or Technical College. Their mission is to provide training/education to support the business needs of the community. They are very familiar with grants available and can write and/or administer the grant application for you. They can also design and deliver the training. Their resources and skills can make attaining grants easier and very realistic.

**Training Options**

We know that you have many demands on your time and resources so we’d like to layout a series of options to clarify what we can deliver and what you can expect from each option.

<table>
<thead>
<tr>
<th>Training Option</th>
<th>Class Size/Time</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option #1 - Onsite</td>
<td></td>
<td><strong>Full Training Courses</strong></td>
</tr>
<tr>
<td>o Operators</td>
<td>O= 6-8 per class/ 1 day M= 4 – 6 per class/2 days E= 3-5 per class/3 days</td>
<td>• Trainees will be able to perform the tasks for safely operating and maintaining the equipment.</td>
</tr>
<tr>
<td>o Mechanics</td>
<td>Still recommend a 4 – 6 week follow-up session</td>
<td>• If additional training/coaching is needed for any individual that recommendation will be specifically made.</td>
</tr>
<tr>
<td>o Electricians</td>
<td></td>
<td>• Individual performance checks will be required to demonstrate their ability to perform the tasks.</td>
</tr>
<tr>
<td>Option #2</td>
<td></td>
<td><strong>Course Overviews</strong></td>
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<td></td>
<td>Unlimited size 2-4 hours</td>
<td>• The equipment and its safety features will be explained but trainees will have no or very limited experience working on the equipment.</td>
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<tr>
<td></td>
<td></td>
<td>• No evaluations will be administered.</td>
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<tr>
<td></td>
<td></td>
<td>• Additional hand-on training would be needed to develop their skills on the equipment.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• This will NOT qualify for meeting the requirements of the equipment warrantee.</td>
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<tr>
<td>Option #3</td>
<td></td>
<td><strong>(At OEMs location) Train-the-Trainer</strong></td>
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<tr>
<td>o Operators</td>
<td>O=2-4 per class/ 2-3 days M=2-4 per class/3-4 days E=2-4 per class/3-4 days</td>
<td>• Trainers will be proficient in their ability to safely operate and maintain and troubleshoot the equipment plus they will have basic training skills.</td>
</tr>
<tr>
<td>o Mechanics</td>
<td></td>
<td>• They will then be able to train others at your location. They will also have basic training aids to utilize.</td>
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<tr>
<td>o Electricians</td>
<td></td>
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<tr>
<td>Option #4</td>
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Characteristics of the Adult Learner

Being a trainer in an industrial setting is a very rewarding and challenging opportunity. This section will look closely at the adult learner, as well as the industrial trainer. It will heighten awareness of the needs of both, as well as offer some techniques that can make the experience a positive and productive one.

**The Adult Learner**

Who is the adult learner and how do they differ from any other? That is the question we’ll address. Let’s do that by thinking about who the typical trainee is that you’ll be training. On the left side of the chart below, list some of the things you think you know about adult learners.

### Characteristics of the Adult Learners in a Plant

<table>
<thead>
<tr>
<th>TRAITS</th>
<th>POSSIBLE RESPONSE</th>
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</tbody>
</table>
## Example – Characteristics of the Adult Learner

<table>
<thead>
<tr>
<th>CHARACTERISTICS</th>
<th>RESPONSE</th>
</tr>
</thead>
</table>
| Insecure in their ability to learn new things – resistance to change. | • Ask about all the past new processes/equipment that they have had to learn and how they accomplished that. Draw from past experiences they already have mastered. This helps to reduce their lack of self confidence and makes them realize how they have “survived” change in the past.  
  **Talk about successes** – the best of what already happened. Tell your own fun stories about how you were afraid at first and what got you ‘over the hump.’  
  • Ask for their stories.  
  • Repeat learning steps often – repetition is a key to learning.  
  • Provide frequent positive feedback.  
  • Teach in small chunks – provide positive feedback at each step. |
| Learn by doing                                        | • Adults want to **DO**, not talk about things. Keep the classroom work to a minimum, if appropriate, and the “doing” to 80% of the course.  
  • Keep it as close to “real” as possible by using simulators/models or best of all, conduct the training on the actual piece of equipment.  
  • Always allow them to be actively involved. |
| Afraid to fail and look stupid                         | Adults are proud and want to feel good about themselves, like everyone else. For many of them though, they haven’t been in school in many years. Many have bad memories of school and are afraid of looking foolish when they don’t know the right answers. You can relax them by:  
  • Emphasizing the value of their experience and asking them questions that you don’t know about their workplace - they will begin to relax a bit.  
  • Foster a sense of achievement by giving positive feedback for small things. Teach in **small chunks** to build confidence.  
  • **Don’t** create an environment of competition. |
| Lots of experience                                    | • Value their experience. Refer back to it as appropriate.  
  • Ask them questions about past work experiences – let them share their successes.  
  • Build on what they know – refer to equipment or processes that are similar to the new one so they can see it’s not a huge leap in learning. |
| Poor eyesight or Hearing Loss                          | Many times the adult learner may not have had their eyes checked in awhile, making reading or looking at small items difficult. Not realizing that it is their eyesight, they may think they are just stupid. Be aware of this and work with it. If the plant medical staff offers free eye screening make them aware of it ‘generically.’ If hearing loss is an issue talk louder, use more graphics and point to what you are discussing. |
| Task Oriented                                         | Learning usually takes place in small increments (small chunks).  
  • Show them the entire process first BUT then teach it step by step.  
  • Go slow, develop confidence. Repeat steps often. Provide positive feedback.  
  • Reinforce how it applies to their jobs. They need to know **WIFM** (What’s in it for me). |
The industrial instructor also has certain characteristics and challenges. Very often time is spent talking about the trainees but rarely about the trainer – so here is our chance. Thinking about your own experiences, what are some of the personal challenges, concerns and questions you have had? (ex. Trainees may have more experience than I do). Discussing concerns is especially important with internal hourly trainers who will be training their co-workers. On the left side of this matrix, write them down. Together we’ll discuss ideas that helped, which you can fill in on the right side.

<table>
<thead>
<tr>
<th>Questions/Concerns/Challenges</th>
<th>Ideas that Helped</th>
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</thead>
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</tbody>
</table>
### Example – The Industrial Instructor

#### Questions/Challenges an Industrial Instructor Has

<table>
<thead>
<tr>
<th>Questions/Concerns/Challenges</th>
<th>Ideas that Helped</th>
</tr>
</thead>
</table>
| Participants will dismiss me as a ‘kid’ because I am much younger and less experienced than they are. | • Don’t try to act like a know-it-all.  
• Respect their knowledge and take every opportunity to ask questions that you know can help the learning process.  
• If you don’t know an answer, don’t make one up. You will definitely lose their respect this way. They will actually appreciate that you don’t know some things. Do the follow up needed to get them an answer though.  
• Explain that by combining their experience and skills with your knowledge the training will be more effective. |
| I won’t get the right people in the class – those that actually need the training. | • Make sure this is discussed at the beginning when you are discussing expectations during the partnership agreement.  
• Let the customer know of other options, so you can get the right people – like rescheduling, if possible – or just training their trainers. |
| The equipment won’t be available.                                | • Always have a contingency plan.  
• You should discuss this prior while creating your partnership agreement. (ex. Can you observe instead of do, as one alternative?)  
• Always check that the equipment is available **BEFORE** you start training.  
• Make sure the **production and maintenance supervisors** are aware of your training needs for equipment hands-on time. |
| The educational level is very low – some can’t read.             | Some clues to watch for or things you can do:  
• Are people making excuses like: I forgot my glasses at home, I need a new prescription; I have an eye infection; always referring to someone else or watching for others to respond?  
• Drawings, pictures, and doing are your best bet here. You have to respect that they have been working many years with these limited skills, so they compensate.  
• Don’t dismiss them as stupid or that they can’t learn. Some of the best operators have good recognition skills that get them through.  
• If reading is absolutely necessary you need to discuss this with your customer. In the needs assessment this should have come up and been dealt with.  
• Job aids with graphics, arrows and other clues helps tremendously. |
Training Techniques

<table>
<thead>
<tr>
<th>Questions/Concerns/Challenges</th>
<th>Ideas that Helped</th>
</tr>
</thead>
<tbody>
<tr>
<td>Union members bring up unrelated or related issues to distract the class.</td>
<td>• Have a <strong>parking lot</strong> list (flip chart – one piece of paper if you are on the line) and add these to it as they come up. (See p. 121)</td>
</tr>
<tr>
<td></td>
<td>• Introduce the parking lot concept at the beginning and tell them that topics brought up that are not related to the training will not be addressed during class time but they will be referred over to the appropriate person.</td>
</tr>
<tr>
<td></td>
<td>• Don’t try to get into union issues that aren’t yours to deal with.</td>
</tr>
<tr>
<td>Participants don’t ask questions</td>
<td>• At the beginning of the class tell them that you will be asking them all to come up with questions other people might want to ask.</td>
</tr>
<tr>
<td></td>
<td>• Use the third party approach. “Questions others have asked are…”</td>
</tr>
<tr>
<td></td>
<td>• Use <strong>the nominal group technique</strong> where you go around the room. That way everyone knows they have to contribute. They can “pass” but typically this gets most to participate. (See below and p. 118)</td>
</tr>
</tbody>
</table>

*The **nominal group technique** is an approach to get everyone in a group involved in a non-threatening way. When working in a group you let them know that at times you will ask every participant to add to the discussion. You start with one person and just go around the room. You can ask, “What additional questions, concerns or issues do you have about what we discussed?” If for some reason someone doesn’t want to contribute at that time they could say “pass” and we’d come back to them. It sort of gives everyone “permission” to talk and typically generates much more discussion than normal. The real value is that you’re getting input from everyone – not just the few “talkers.” It’s a much richer discussion that way. (See p. 118 for more details.)

**NOTES**
Uninterested Trainees

Why are they bored, unenthusiastic, uninterested????

What can trainers do to get their trainees attention and interest?
### Uninterested Trainees

<table>
<thead>
<tr>
<th>Why Bored</th>
<th>How to Get Them Interested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classroom Lecture</td>
<td>• Make the class more interactive. Ask questions; use the nominal group technique to get everyone talking.</td>
</tr>
<tr>
<td></td>
<td>• Start session identifying what they want from the class so you KNOW and can direct your attention to satisfying those needs.</td>
</tr>
<tr>
<td></td>
<td>• Use their topics to guide the discussions.</td>
</tr>
<tr>
<td></td>
<td>• Move to a simulator or on the actual equipment/line/system.</td>
</tr>
<tr>
<td>Masking fear (they act bored as a defense mechanism)</td>
<td>• Put trainees at ease; get them to talk about themselves in a non-threatening way.</td>
</tr>
<tr>
<td></td>
<td>• Talk about past examples of when new things seemed hard, then how they learned and got over the hump.</td>
</tr>
<tr>
<td></td>
<td>• Show where this “fits” in their job and it’s importance.</td>
</tr>
<tr>
<td>They won’t be using this equipment – just there to “fill a seat”</td>
<td>• In your Partnership Agreement, make this a point – not to include extra people just to fill a spot.</td>
</tr>
<tr>
<td></td>
<td>• Ask them to stick it out until break when you can talk to the supervisor and have them reassigned.</td>
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<tr>
<td></td>
<td>• Remove them from the class and send them back to their area (with permission). Don’t waste everyone’s time.</td>
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<tr>
<td></td>
<td>• Ask them to help you demonstrate or scribe (if appropriate).</td>
</tr>
<tr>
<td>They already know most of the material</td>
<td>• In the beginning, when you get input from participants about prior experience, and you hear that they “already know this”, ask if they would help you demonstrate during the class. Let them take an active role.</td>
</tr>
<tr>
<td></td>
<td>• During class refer back to that person asking for their comments/suggestions. (ex. When you’ve done this what kind of problems have you experienced? What recommendations would you make to repair this? etc.)</td>
</tr>
<tr>
<td></td>
<td>• Thank them for their input – appreciate their experience.</td>
</tr>
<tr>
<td></td>
<td>• Have them help develop the class delivery topics (ex. What topics do you think are most important to cover?)</td>
</tr>
<tr>
<td></td>
<td>• Ask what type of activities would be most helpful to increase participants understanding.</td>
</tr>
<tr>
<td>Not accustomed to sitting for very long</td>
<td>• Alter the classroom activities – use variety. If you have to lecture do so only for a little while, then do questions or have them get up to look at a diagram/chart. Alter your presentation approaches. Keep classroom time short and plan more time on the simulator/equipment or interactively. Tell them to feel free to stand up if needed.</td>
</tr>
<tr>
<td>They are still resisting change</td>
<td>• Bring up topics they are interested in (from intro part).</td>
</tr>
<tr>
<td></td>
<td>• Talk about things they do know and draw parallels to the equipment you are training on to reduce resistance.</td>
</tr>
<tr>
<td></td>
<td>• Ask for their stories about learning new things – have fun with it.</td>
</tr>
<tr>
<td></td>
<td>• Show where this “fits” into their job and the importance of it.</td>
</tr>
</tbody>
</table>
Dealing with Difficult Trainees

When training, start with the philosophy that most people want to do well. Each one of them brings lots of life experience – your job is to bring out the best of what they have and use those strengths to create a positive learning experience. The use of open ended questions can be very helpful here. No one wants to fail yet when fear jumps in, it often creates difficult training situations. Many of those situations have already been discussed in the section on the adult learner and the industrial instructor. Let’s take this time to try and identify some difficult trainee or training situations that we haven’t mentioned or that you’ve experienced and how you’ve handled them.

Difficult Trainees

<table>
<thead>
<tr>
<th>Difficult Trainee</th>
<th>Ideas that Help</th>
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</tbody>
</table>
Training Techniques

Example – Dealing with Difficult Trainees

When training, start with the philosophy that most people want to do well. Each one of them bring lots of life experience – your job is to bring out the best of what they have and use those strengths to create a positive learning experience. The use of open questions can be very helpful here. No one wants to fail yet when fear jumps in it often creates difficult training situations. Many of those situations have already been discussed in the section on the adult learner and the industrial instructor. Let’s take this time to try and identify some difficult trainee or training situations that we haven’t mentioned or that you’ve experienced and how you’ve handled them.

Difficult Trainees

<table>
<thead>
<tr>
<th>Difficult Trainee</th>
<th>Ideas that Help</th>
</tr>
</thead>
</table>
| Trainee is disruptive in class – always talking (having side conversations) while you are trying to teach. | • Set the ground rules at the beginning of the class. Let everyone know that if there are side conversations you’ll stop and ask them to share their discussion, or just remind the group and wait until it stops.  
• Ask the person to help you do the flip chart or participate in a demonstration or help out in some other useful way.  
• Ask the person questions to get them more interested in how they would apply this on their job. Refer to the section on “bored trainees,” p.80-81.  
• During break talk to the person individually.  
• If you think it’s a “fear” issue refer to adult learner p. 76. |
| The Dominator – Person who always wants to talk or butt in | • Use nominal group technique (p. 79 & 118) to spread the conversation around.  
• Thank them for their input but shorten their comments with close ended questions (p. 116).  
• DON’T attack their self image or fight back – it adds fuel.  
• Give the trainee a role during the class that you can control. Or ask them to explain things in detail with good probing or close ended questions to keep them on track.  
• Show acceptance – they may be in need of appreciation. BUT don’t over compliment which might encourage domination. |
| The Insecure Trainee – Trainee is afraid to try         | • Share stories of your past failures and laugh at how surprised you were that you ended up learning in spite of the mistakes. Stress the importance of mistakes and how valuable they are in the learning process.  
• Ask about changes in the past that they got through and how they did it. (Tell stories about changes – answering machine, remotes, ATMs)  
• Ask them to at least try a very small step and build their confidence from there. Take small steps. Reinforce them positively.  
• Get them talking about something they are proud of or particularly good at to build their confidence. |
| The Passive Trainee – Person who always says “yes” or says nothing at all | • Use the nominal group technique so that everyone else talks. It’s important for them first to feel comfortable talking.  
• Ask more open or probing questions. Avoid close ended questions.  
• Reverse the question so you know the answer is no and ask what would make it right. (Closed/probing questions)  
• Ask them to demonstrate – many adult learners prefer to DO rather than talk. Ask them to explain while doing. Prompt them.  
• Find ways for them to succeed and acknowledge them positively. |
How to make your training more global

Faced with international mergers, overseas expansion or increasing diversity in your U.S. workforce?
Here are the tools you need to adapt your training for big results in a world that keeps getting smaller.

The German CEO had come all the way to Chicago for two days of training. His English was incomprehensible, and he appeared to participate easily in all of the activities and discussions.

But after ten years of leading—-and participating in—international training, I could read the signs. His eyes glazed over when the two facilitators talked at the same time. His eyes narrowed when people talked about “wrestling” with ideas. He recoiled when he was asked point blank, “What is your dream?”

During the break, I went over and asked what it was like for him to participate in such an American-style training seminar.

“’In Europe, we would never be so direct,” he began. “It is all very straightforward. Except when people speak too quickly. Or when everyone talks at the same time. Tell me, why were they talking about dessert and family matters (‘motherhood and apple pie’) in a management seminar?”

The internationalization of training

This discussion took place last fall. I tell this story because it illustrates a number of the principles I stress to Americans who train international participants.

I too have been the lone foreigner in seminars held in a foreign language—and the lone American among participants from 20 different countries. I have led seminars where I was the only native English-speaker in the room. And one seminar where I had to say everything twice, because half of the Russians in the room understood French and the other half understood English (and my Russian was nonexistent).

My experiences, like the German CEO’s, fall into three major categories: use of language, cultural differences, and “international attitude.”

Use language effectively


Fortunately for us, English is the major language of business worldwide. But few of us native speakers realize that this “international” language is not the same English we speak with our neighbors and coworkers. Here are the essentials for speaking a version of English that foreigners can understand.

1. Speak at a pace that is neither insultingly slow, nor as rapid as you would speak to friends and colleagues at home. Listen to some news anchors on television to get an idea.

2. Enunciate more clearly than normally. Try putting your hand flat about half an inch below your chin and speak so that your chin touches your hand every word.

3. Avoid speaking at the same time as others. Sensitive trainers remind the international participants to speak one at a time—difficult for many nationalities!

4. Allow more time than usual between sentences and give the group more frequent breaks. It’s exhausting to

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1 Ellen Hake, (1) 312-337-0330, CCM&C, www.ccmcglobal.com
Training Techniques

listen to another language for long periods. The energy required to understand takes away from the energy a person can give to process and retain information.

5. Speak “international” or “offshore” English. You can minimize your chances of being misunderstood by avoiding:

6. unfamiliar words (broth instead of soup, brainy instead of intellectual),

7. slang expressions (“get sacked” instead of “was fired”),

8. idioms (“bring home the bacon” for “earn a living”)
   - complex ways of expressing simple ideas (“I could care less” instead of “I don’t care”)
   - references to American pop culture (Catch 22, Tell it to the hand …)
   - swallowing syllables, as in Kinya doot? (Can you do it?), Wanna (Want to?) or D’jew (Did you?) or Yeet? (Did you eat?)

Adapt to cultural differences

Language differences are the tip of the iceberg when it comes to international training. You will find more complex differences in the way people respond to you as a trainer, how they participate and how they think.

Last year I facilitated a workshop with managers from China, Holland, the UK, Italy, Mexico and France. The Dutch managers talked most, followed by the Italians, the British and the French. We knew that the Chinese and Mexican managers had valuable experiences, yet they never spoke up.

We eventually broke the participants into mixed nationality groups of three. After 30 minutes, a spokesperson from each group summarized the contributions of all three members and we finally heard about the Asian and Mexican projects.

Why the difference? Our Chinese and Mexican managers came from cultures where talking about their achievements would be considered bragging. Displaying their knowledge might also show a lack of respect for the trainer.

Cross-cultural guru Edward T. Hall offers a model for understanding these kinds of issues in his pioneering work on cultural differences. Hall developed a continuum of national cultures from Low Context to High Context.

1. In Low Context Cultures, people tend to focus on individual achievement and competition. They are willing to take risks and feel they have a fair degree of control over their destinies. They communicate what they mean directly and look for a single, logical truth. They want to acquire knowledge quickly and efficiently so they can plan, manage and control events.
   (Examples: United States and Germany)

2. In High Context Cultures, people tend to put the good of the family or community ahead of their individual interests. Face-saving, respect for authority, and harmony are important, so communication is indirect. Multiple sources of information—and multiple truths—can coexist. People value how well something is learned more than the speed or quantity of the learning. People avoid taking risks and feel that destiny plays an important role in their lives. Examples: Asia and Mexico.

Earth Lessons for trainers

What does this mean in terms of international training? First, trainers need to understand that they will not be able to read visual and behavioral cues accurately without understanding these differences. For example:

1. Asians may smile to cover up embarrassment or disappointment—rather than to show pleasure or agreement.

2. Indirect communicators, including Mexicans and Arabs, may not ▶

2 Ellen Hake, (1) 312-337-0310, CCM&C, www.ccmglobal.com
express disagreement directly. You have to read between the lines.

3. During discussions, Brazilians may maintain eye contact most of the time—and Japanese people almost never. Yet this difference reflects nothing about their degree of interest or “trustworthiness”.

Be flexible

The second lesson for trainers: you need to be flexible enough to adapt your style and techniques to different cultures.

A low-context American trainer working with a higher-context culture may need to:

1. Ask people to work in pairs or triads so that they will be more comfortable participating.

2. Avoid exercises and games where physical contact, competition, risk-taking and trial-and-error are essential.

3. Be more formal. Establish your expertise and realize that people are accustomed to treating leaders with respect.

4. Verify what people have learned. They may appear to agree with you—or say that they understand—when in fact they don’t. The reason: politeness or saving “face”.

Develop an international attitude

As a trainer from another country, you can be accepted in spite of your unfamiliar language and facilitation skills if you have what is called an “international” attitude.

I saw a striking example last year at a multinational organization headquartered in Europe.

One of the company’s best speakers was an American director who had been a professional baseball player. His style was totally un-European—dramatic, informal and motivational. He would begin his talks with a few words in the local language (always appreciated), then with a smiling apology, switch to English.

So far, so good. People were fascinated, both by his message and by his upbeat style. Then, he began talking about “hitting all the bases”, “skimming the surface” and “down home values”. Even the professional interpreters were lost.

As his coach, I explained that he would have to find substitutes for the colloquialisms and Americanisms. “That’s ridiculous,” he said. “American English is the standard worldwide, and they had better just get used to it.”

Not surprisingly, this director managed to alienate the majority of his foreign colleagues within a year. It wasn’t his English, it was his attitude.

The worst disaster I ever saw, however, took place when American company held a business planning seminar for its marketing managers in Europe. The outside facilitator was—as always—American.

When he presented his model for business planning, managers from the different countries raised questions about its validity worldwide.

The facilitator reacted with regal disdain. “If you had gone to an American business school or had an MBA from Harvard as I do, you would understand that no model could be more effective,” he said. Despite damage control by the training manager, the seminar disintegrated into resentment and bickering.

Shortcuts to an international attitude

The real problem in both these cases, was not the inability to adapt language or to present unfamiliar ideas. The problem was the lack of international awareness.

You may not have the time or opportunity to experience other cultures in depth, but
you can use these guidelines as shortcuts to an international attitude:

1. Realize that your values, your logic and your experiences are not universal, but culturally based. Your clue to a cultural mismatch may be irritation or frustration, and your first reaction may be to blame the people around you. Get curious instead.

2. Recognize that American business models are not universally valid. The types of rewards, motivations for work, relationship to authority, methods for setting objectives--even the meaning of goods and services--vary widely.

3. Accept that if you want to communicate internationally, it is your responsibility to adapt—rather than blame others for their lack of understanding.

4. Replace judgments with behavioral descriptions. For example:
   - Don’t say people are “illogical”. Their thinking may be deductive (going from the overall concept to the specific) rather than inductive (starting with specifics to arrive at the concept) as is typical in the U.S.
   - Don’t say people are “unfriendly” because they don’t smile and look you straight in the eyes. Some nationalities think it’s strange that “Americans smile for no reason at all.” In other cultures, it is disrespectful to make too much eye contact.

Be yourself

It may seem contradictory after what I have said so far, but your real self and your national character are important tools for being an effective international trainer.

“Be American,” advised the German CEO we met earlier.

Last year, I attended an international marketing seminar in Sweden. Managers from around the world presented their programs sedately, standing behind podiums, using simple overhead transparencies.

The American marketing manager arranged to give his presentation immediately after lunch. When the other participants returned to the meeting room, it was decorated with banners and a life-sized cardboard cowboy.

The presenter opened with a dramatic music video. During his presentation, he alternately sat on a table and paced around the room.

Cringing, I asked other participants, “Was it too much?” The answer was an emphatic no. “It was so American. We would never do such things, but it was interesting to see how someone from Chicago does it.”

Most business people around the world are familiar with the same stereotypes about Americans: always positive, always wanting to take action, open and casually friendly. They are also aware of the less attractive stereotypes—that Americans tend to think the U.S. is the center of the world, care only about money, and know little about other countries.

How do you maximize the impact of the positive stereotypes while downplaying the negatives?

Find out something about the cultures you will be encountering, adapt your training to the local learning styles, and work on developing an international attitude.

You will enrich your own experience and business relationships—and your training will gain global impact.

Ellen Hake is a communication consultant and cross-cultural trainer, specializing in international mergers. If you have specific questions, you can contact her at ellenhake@ccmcglobal.com or by telephone at (1) 312-337-0310 in Chicago.

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Some keys to speaking “Global English”... adapted from Nathalie Kleinschmit

<table>
<thead>
<tr>
<th>AVOID</th>
<th>DON`T SAY</th>
<th>DO SAY</th>
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</thead>
<tbody>
<tr>
<td>Vague adjectives</td>
<td>Long project, early dinner</td>
<td>A six-month project, dinner at 7 pm.</td>
</tr>
<tr>
<td>Local color</td>
<td>He struck out</td>
<td>He failed.</td>
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<td></td>
<td>It’s a Mickey Mouse operation</td>
<td>It’s a small operation.</td>
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<tr>
<td>Puns and jokes</td>
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<tr>
<td>Idioms</td>
<td>The big cheese, to give a pink slip, happy as a clam...</td>
<td>The boss, to fire, happy...</td>
</tr>
<tr>
<td>Linking gambits</td>
<td>It seems to me</td>
<td>I think</td>
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<tr>
<td></td>
<td>For instance, to give you an idea</td>
<td>For example</td>
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<tr>
<td></td>
<td>Then again/enough</td>
<td>But</td>
</tr>
<tr>
<td>Passive verbs</td>
<td>Applications will be reviewed</td>
<td>The committee will review</td>
</tr>
<tr>
<td>Adverbs</td>
<td>Ran shakily, Ate sloppily ...</td>
<td>Ran, Ate (adverbs add little and are rarely understood by non-natives)</td>
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<tr>
<td>Double negatives</td>
<td>The procedure will not be misunderstood</td>
<td>It will be understood.</td>
</tr>
<tr>
<td>Long or ambiguous</td>
<td>The president, who is known for tough programs and who had already worked</td>
<td>The president is known for tough programs. He has worked for two subsidiaries, said...</td>
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<tr>
<td></td>
<td>in two subsidiaries, said...</td>
<td>Everyone appreciated the meeting. The team organized it. (OR The team organized the meeting. People appreciated their help.)</td>
</tr>
<tr>
<td>sentences</td>
<td>The team organized the meeting which everyone appreciated.</td>
<td></td>
</tr>
<tr>
<td>Phrasal verbs ( verbs</td>
<td>Can you get it</td>
<td>Can you bring it to me</td>
</tr>
<tr>
<td>followed by</td>
<td>They don’t get it</td>
<td>They don’t understand</td>
</tr>
<tr>
<td>prepositions</td>
<td>Get them up</td>
<td>Wake the children up.</td>
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<tr>
<td>“Shurvian”</td>
<td>Jeez yet?</td>
<td>Did you eat yet?</td>
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<td></td>
<td>Dj ew?</td>
<td>Did you?</td>
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<tr>
<td></td>
<td>S’go.</td>
<td>Let’s go</td>
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<tr>
<td>Being critical or</td>
<td>Avoid judgments when people confuse: make and do, make and take, learning</td>
<td>Do listen for the sense of what people are saying rather than reacting to the words;</td>
</tr>
<tr>
<td>offended by</td>
<td>and teaching, control and check, alone and lonely, interested and interesting . .</td>
<td>“I assist in the formation realization in spite of its importance” may mean “I am participating in the seminar about training implementation even though it is expensive...”</td>
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<tr>
<td>non-native errors</td>
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Training Non-English Speaking Trainees

Training non-English Speaking trainees is one of the challenges trainers consistently struggle with. To address that, two industry subject matter experts and PMMI conducted a Webinar focusing on helpful ideas that will make this challenge a bit more manageable.

- Dennis Terdy, English Language Consultants, Inc. - an English language program consultant, industry training and grant writer - dennis.terdy@gmail.com
- Ernie Sanchez, Rocky Mountain Consulting - worked at Nabisco for many years in maintenance and operations; delivers bi-lingual training as well as translates/develops equipment-training materials in Spanish. E_sanchez@msn.com

COMMON MISTAKES

<table>
<thead>
<tr>
<th>Sending negative Non-verbal body cues</th>
<th>Since Non-English speaking trainees can't understand you adequately they will be looking at your body language/cues. If you show your disinterest or frustration they will read it and be turned off to learning and/or feel disrespected.</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Smile, use their names</td>
<td>- Greet them with a word or two of their native language</td>
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</table>

<table>
<thead>
<tr>
<th>Lecture – just keep talking or expect them to adapt</th>
<th>This is a waste of time!</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Use job aids/visuals</td>
<td>- Do as much hands on as you can</td>
</tr>
<tr>
<td>- Use your key “non-negotiable” words – those most essential</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Not bothering to learn a few words in their language</th>
<th>Use any of the translation site to find a few words (ex. Greetings, hello, goodbye, thanks)</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Check with your site contact on how to say them</td>
<td>- Use a Smartphone translation app</td>
</tr>
<tr>
<td>- Refer to reference section 6 for websites and page 3 of this overview</td>
<td></td>
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</tbody>
</table>

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<thead>
<tr>
<th>ASSUMICIDE</th>
<th>Don't assume their technical knowledge or their language capabilities.</th>
</tr>
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<tbody>
<tr>
<td>- Do a “needs assessment” ahead of time so you can be better prepared.</td>
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<tr>
<td>- Do a mini &quot;needs assessment&quot; at the beginning of class</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Talk LOUDER</th>
<th>A very common mistake</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Speaking slower and articulate clearly will help but louder does nothing since they still don’t understand.</td>
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</tbody>
</table>
CONDUCTING A MINI-NEEDS ASSESSMENT

Often a trainer may make the assumption that their trainees don’t understand anything they say. These suggestions can help you identify their level of understanding and give you ideas about how to proceed

- Try simple request:
  - “Show me the e-stop”
  - “Point to the safety label”
- Develop a “request sequence” (is this the..?, where is the..?, Questions with one or two word answers)
- Identify people who demonstrate a higher proficiency level who might be able to help translate/demonstrate/assist others

SET TRAINING GOALS
- CONTENT GOALS – Identify what you want them to know/be able to do
- LANGUAGE GOALS – Identify KEY words that they absolutely have to know (vocabulary like “e-stop” + action words like “press”)

IDENTIFY (KEY) NON-NEGOTIABLE WORDS
- What are the 5 – 10 words they absolutely have to know in English
  (Ex. E-stop, HMI screen, gear, timers, circuit breaker, guard etc. – they will be different for each company/piece of equipment)
- Review them with the host
- Identify both the task and the key word.

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<thead>
<tr>
<th>Task Samples (ask “what is the general task you need to have them do?”)</th>
<th>Key ACTION Word Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control equipment</td>
<td>Start, stop, main screen, reset</td>
</tr>
<tr>
<td>Troubleshoot Jams</td>
<td>Check, stop, clear, reset</td>
</tr>
</tbody>
</table>

TALK LESS – DO MORE
LESS IS BETTER!!!
BE CONSISTENT
MODEL, MODEL, MODEL

GENERAL SUGGESTIONS
- Talk SLOWER (not louder)
- Find a translator or someone in class who has some bi-lingual capabilities
- Prepare simple job aids in their language (using both languages is ideal)
- Use LOTS of VISUALS
- Teach in small chunks – do lots of hands-on
- Keep to basics
- Know the plant culture – observe
• Don’t **ASSUME** anything
• Take the classroom element out of the training
• Show respect – learn a few words in their language

## TRAINING NON-ENGLISH SPEAKING TRAINEES

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Ideas/Hints</th>
</tr>
</thead>
</table>
| How do I know if my trainees understand anything I’ve taught?             | • Have them demonstrate the tasks taught  
• Have them use the non-negotiable words                                                                                                   |
| My materials are only in English                                          | • Prepare simple job aids or short booklets using their language whenever possible or  
• Use your English job aids and add the other language on them                                                                            |
| There are no translators available to help                                 | • Make simple request to identify what they do understand  
• Identify any trainee who may have more English fluency  
• Use non-negotiable words and stick to the basics  
• Do hands-on  
• MODEL the steps of the tasks                                                                                            |
| How do I communicate clearly thru a translator?                           | • Be succinct, LESS IS MORE  
• Select someone who has technical knowledge not just someone who can translate.                                                        |
| How do I gain credibility?                                                | • Learn a few words in their language  
• Use positive body cues  
• Demonstrate patiently  
• Provide positive reinforcement (smile)  
• Show them respect  
• Don’t go against their cultural values (ex. Contacting staff at high levels when you only should talk to the person who is identified as your contact) (Asia).  
• Make an effort to learn and use their names                                                                                           |
| We require certain skills as prerequisites but when we get there they don’t have them                                           | • Do a “needs assessment” prior to arriving at the plant  
• Do a mini “needs assessment” when you arrive or when you start your class.  
• Discuss this with the host ahead of time  
• If skills still not present explain to host what you CAN and CAN’T do and what training the trainees will receive |
| How do I learn a few words in their language?                             | • [www.bablefish.com](http://www.bablefish.com)  
• Use a Smartphone translator app or Google Translate  
• [www.omniglot.com](http://www.omniglot.com)  
• [www.freetranslate.com](http://www.freetranslate.com)  
• Always check with your contact to see if what you have is accurate  
• Don’t be afraid to make pronunciation mistakes – do the best you can. They will appreciate your effort! |
| How do I learn about their culture?                                       | • Observe, talk to internal contacts and others who have been there before  
• Reference *Kiss, Bow or Shake hands: How to do Business in 60 different Countries* |

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Test the IQ (international quotient) of your training

( ) Do you use trainers of different nationalities?
( ) Do your trainers use examples, case studies and models from a variety of countries?
( ) Do your trainers have experience conducting training in an international environment? Dealing with cultural sensitivities and learning styles?
( ) Do you hold training sessions in a variety of countries to promote international awareness?
( ) Before dealing with a new country or nationality, do you find out some key facts, such as the form of government, name of the national leader, major products, sources of pride, recent political and natural crises, key historical events and heroes? (A good guidebook will have most of what you’ll need.)
( ) Do you schedule longer breaks to allow participants to develop relationships and exchange ideas?
( ) Do you ask participants about their level of language proficiency and arrange for professional translators when needed?
( ) Do you take international and religious holidays into account when you schedule training sessions? (May 5 for Mexicans, July 14 for French employees, Jewish High Holidays, Ramadan for Islamic cultures, etc.)
( ) Do you use plenty of visual aids? Understanding will get a major boost if you also have your slides and handouts translated into participants’ native languages.
( ) Do you take different cultures into account when planning gifts (local products, books or quality pens, for example, rather than American-style T-shirts or baseball caps)?
( ) Do you ask participants about dietary restrictions before planning menus?

###
The 4-Step Training Process

The 4-Step Training Process is both logical and practical. It consists of the following steps that should be used during training. The pages that follow will cover each in more detail.

Step 1: Prepare (Motivation)
- Prepare your lesson plan
- Prepare yourself and the area - have all materials needed.
- Break down the job into small “chunks” for learning ease
- Help the trainee relax - find out about their experience
- Explain the big “picture” and how it fits into their jobs

Step 2: Present (Understanding)
- Explain and demonstrate any and all safety precautions/procedures
- Tell them what you are going to do
- Demonstrate
- Explain
- Offer hints

Step 3: Try-Out (Participation)
- Have the trainee talk through the job
- Have the trainee instruct the trainer on how the job is done (this makes the process safer) plus it allows the trainee to “see” it again
- Let the trainee do the job - have the trainee explain what they are doing while they are doing it
- Provide positive and constructive feedback
- Let the trainee practice

Step 4: Follow Up (Application)
- Check progress frequently at first
- Provide positive feedback
- Tell the learner who to go to for additional help (if needed later) - both internally and externally
- Gradually taper off progress checks
- Ask trainee for input for job aids

For more detail, read Training That Works: A Guide to On-the-Job Training, Charles M. Cadwell. This is an American Media Publishing How-To-Series 1-800-262-2557
Step 1: Prepare

**Yourself**
- Know your material
- Have a lesson plan of topics to cover and timeline
- Have all the materials needed for the class
  - Manuals
  - Job aids
  - Sign-in sheets, evaluation sheets
  - Projector/screen
  - Visual Aids
- Make sure the logistics have been taken care of
  - Room
  - Supplies
  - Flip charts
  - Overhead projector/screen
  - Data projector/screen
  - Simulator
  - Flow chart diagram
  - Masking tape, markers
  - Pencils
  - List of participants
- Make sure worksite is ready
  - Classroom
  - Online power access
  - Scheduled time on the line

**The Trainee**
- Put trainee at ease
- Introduce yourself
- Tell them what you’ll be doing so they know what to expect
- Get to know a little bit about them (years at the job, things they enjoy, etc.)
- Find out what trainee already knows (about the job/task)
- Explain job and importance to the operation

The next page has another version of a checklist.
Example – Pre-Session Checklist

### Materials
- [ ] Manuals
- [ ] Job aids
- [ ] Diagrams
- [ ] Flip chart
- [ ] Projector (overhead, data, video)
- [ ] Markers
- [ ] Masking tape
- [ ] White board, markers for white board
- [ ] Handouts
- [ ] Evaluation forms
- [ ] Pens, pencils
- [ ] Other:

### Man (You and participants)
- [ ] Facility scheduled (classroom, lab etc.)
- [ ] Classroom set up for participants
- [ ] Refreshments scheduled (if having them)
- [ ] You have your lesson plan and time allotments
- [ ] Class participants list
- [ ] Name/number of internal contact person/s if needed
- [ ] Access to the building to get to class/who to call when you arrive
- [ ] Other:

### Machines
- [ ] Have you “tried out” your simulator or projectors (if being used)?
- [ ] Do you know if there is power to the equipment?
- [ ] Is the equipment/line/system available and scheduled for you?
- [ ] What is your backup? Has the supervisor been notified?
- [ ] Other:

### Methods
- [ ] Do you have an instruction/lesson plan laid out
- [ ] Do you have the tools and materials needed
- [ ] Is your “hands-on” time allotment well scheduled
- [ ] Do you have internal trainers to assist with demonstrations

### Measurement
- [ ] Performance checks prepared and available
- [ ] Class evaluations prepared and available
- [ ] Other:
Training Methods and Retention Quiz

Take a guess...

Draw a line from the training method to the level of effectiveness (on the pyramid) you think it has. The bottom is the most effective, the top the least effective method.

Video’s, CD ROMs, DVDs
Discussion
Lecture
Drawings & Pictures
Simulations & Practice

Put down the percentage of information you think is retained using each method.

_____% What trainees see as they hear
_____% What trainees read
_____% What trainees say or write
_____% What trainees hear
_____% What trainees say and do
_____% What trainees see
Training Methods and Their Levels of Effectiveness

1. Lecture
2. Discussion
3. Drawings & Pictures
4. Videos, CD-Roms, DVDs
5. Simulations & Practices
Knowledge Retention

Percentage of knowledge retained by people when doing these things

When “preparing” you should understand how trainees learn and retain best – then select your instruction method accordingly.

90%… what they SAY as they DO

70%… what they SAY or WRITE

50%… what they SEE as they HEAR

30%… what they SEE

20%… what they HEAR

10%… what they READ
Training Strategy

Typical Training
(lecture, reading, writing)

Information Delivered
("information dumping")
("sheep dipping")

Old method
Resistance
Ineffective for most learners
Program of the month

Left Brain
Linear
Logic
Math
Reading
Writing

Follow
Not driven
Competition is better
Fear
Apathy

Informational

Active Training
(accelerated learning)

Change in Behavior
(emotional, intellectual stimulation)

Multiple Intelligence
Creativity
Innovation
Whole Brain

Values
Diverse
“What’s in it for me”

Inner Force
Motivation
Learner Centered

Right Brain
Creative Logic
Critical Thinking
Balanced Learning
Visual
Spatial
Music
Motion
Color

* Did you know... the right brain is 1700 times faster than the left!

Lead
Systems thinking
Vision
Risk
World class

Behavioral
Retention Games

From class we know that the highest rate of retention is when the trainees “say and do”. Aside from the actual training demonstration where they do that here are a few games that are both fun and improve retention. Many of these are based on the “depth of learning principle” – the deeper you get the more likely you are to remember. Whenever your trainees are asked to “discover” things for themselves retention increases.

1. **The WRONG ANSWER CARDS** – after you have delivered some training hand out a card to each participant with a question and a WRONG answer. They must then read the question and explain WHY it is wrong. (It's one thing to give a right answer but to explain WHY makes them go deeper and retain longer.) Alternative option: each could ask the group to explain WHY it is wrong.

2. **QUESTION cards** – at the end of class or at a time appropriate for review hand out cards with questions. Ask them to read the question and either answer it or ask the group. This makes them use more senses – seeing, hearing, reading, talking, touching – enhancing retention. When appropriate, ask WHY after their answer.

3. **STUMP THE TRAINEES CARDS** – each trainee writes a question on a card and tries to stump the other trainees.

4. **HMI BUTTON GAME** – rather than go through every button on the screen ask each trainee to “find a screen no one else has found”. Once they find it they can explain what they think it is. The fact that they have to “discover” it themselves adds to retention. It’s also fun to keep finding new ones.

5. **JEOPARDY** – Create a jeopardy board with the questions you want to ask related to your training. Divide the group in half and have them compete against one another for points. It not only increases retention, it adds fun and teamwork.
Retention - Depth of Learning

• You have to make the “trainee” do the work- can’t spoon-feed them meaningful processing.

• When you do something with the information you’re presented with, you recall it better. KNOWLEDGE DOESN’T BECOME THEIRS TILL THEY DO SOMETHING WITH IT!

What do you think? What would be better as a trainer?
• The trainer presents the material as found in the manual
• Not do anything and let the trainees read the manual themselves (see bullet below for answer)

• Self-discovery without guidance will trump a dull presentation without interaction. The best learning is often about SELF-discovery. The key word here is DULL presentation!

• By asking the trainee to demonstrate a task taught the trainee will have a deeper understanding of the task/information. KEEP THEM ACTIVE especially before a difficult task or concept.

• By having them explain what they are doing and why will increase the level of retention tremendously, have a deeper level of understanding as well as their ability to perform the task. Ex. “Explain to me what I have just shown you then I’ll do it again while you watch, and then demonstrate it to me while you explain what you are doing.” IF YOU WANT THEM TO HEAR YOU, YOU TALK, IF YOU WANT THEM TO LEARN THEY TALK.
• When demonstrating a skill, elaborate on the reasons for why you do each step. Provide a context so they understand each step in the process as it relates to the whole skill set. If you think you’re giving them too much information- you probably aren’t.
• If a trainee has the wrong answer or performs a task incorrectly a good trainer asks a question that makes the trainee think about the answer they gave- and generate the correct answer. The trainee now generates new and deeper understanding of material. TRAINEES VALUE MORE WHAT THEY SAY AND WHAT THEY CONCLUDE THEN WHAT WE TELL THEM. Ex. Why is that the correct answer?” or “Correct, but why?”

What do you think? What would create the highest level of retention?
• Spend a full day training on a topic/task
• Spend 2 hours a day for five (5) days?

• Spaced repetition increases retention, so training 2 hours a day for five days would be more effective based on the “depth of retention” concepts.
## Retention –

Just a few more hints on RETENTION –

| **People crave patterns** | When training it helps to refer back to what trainees know first then move onto what is new. We pick things up faster if we can relate it to past experience. Our brain likes to “fill in the blanks”. They don’t retain until they see the relevance. |
| **After 10-20 minutes people need downtime** | After 10 – 20 minutes the brain needs “downtime” – that means, “doing” something. They also tend to retain more of what is said at the beginning and at the end of what is said. |
| **Downtime is critical** | It could be as simple as getting up and moving around, taking a deep breath or practicing a task. Keeping the mind moving increases retention. |
| **Guided practice** | Guided practice is necessary to retain information – make sure that the task is done accurately and gets reinforcement from you. Long-term Retention doesn’t happen until the trainee has done the task over and over, just like sports figures practice to build “muscle memory”. |
| **Say and DO** | When trainees “say and do” they can retain 90%. |
| **People don’t retain without emotion** | People need to know how the training will affect them. Stories help tremendously. They have to see how it relates to them. |
| **People are social** | They need social reinforcement. They like to see and repeat. Make sure you demonstrate the accurate steps or it will build inaccurate memory connections in the brain. Think of how end-users come up with poor short-cuts when they don’t know the answers on their own. |
| **Use Movement before difficult tasks** | It’s ideal to use purposeful movement especially before harder or more demanding tasks. It could be as simple as walking out to the floor and looking at the equipment or standing up for a few minutes. |
| **Prepare for learning physically** | To prepare for learning you should have 8 hours of sleep the night before, drink water (good to have water for the trainees), have some fruit, take in some oxygen (take a deep breath). Retention is increased significantly with 8 hours of sleep. Retention happens during sleep! |
| **Make it FUN – Use Humor when possible** | When things are fun people tend to remember them more…. goes back to that emotional connection as well as their need to be social. |
| **Stretch Don’t STRESS trainees** | If you push too hard or try to train too many tasks at one time they will shut down. It’s important to SIMPLIFY. |
| **Use sign language** | Sign language can transmit 4 x faster than words. Visual and physical movement helps retention. We retain 80% more through visuals. |
Understanding how the Brain affects Retention

The brain has millions of Neuron connections where memories/knowledge lies—our job as trainers is to create the environment to develop new neuron connections that will cement the new skills and knowledge we are teaching.

Because our brains will first search for what it knows it’s important to start training where people are comfortable (what they already know – the current neuron connections) - and show how this new task/skill relates to it. Then build the new skills (new neuron connections) from there. **EVERYONE IS CAPABLE OF LEARNING.** Try to simplify so it isn’t too complicated to decode. The use of pictures or any visual is very helpful. We retain 80% more through visuals.

**NEURONS’ THAT FIRE TOGETHER STAY TOGETHER**

You can rewire the neurons in your brain for the new learning by repeating over and over for LONG TERM RETENTION. **Practice makes permanent.**

Just like when you train in any sport you are developing MUSCLE MEMORY you develop BRAIN MEMORY by repeating and developing the consistency to “hard-wire” the information.

**TYPES OF RETENTION**

**IMMEDIATE** – is like a clipboard. We may put info on it then let it go as needed. It’s usually short term.

**WORKING** – This is where our brains are searching for patterns we already have – our current neuron connections. Until they find that connection LT retention won’t happen.

**LONG-TERM** – Once the brain finds the related connection/patterns it can create new ones through practice. The new Neuron connections (long term retention) then can happen. It’s like hard wiring or soldering the learning in our brain.
### Learning Styles*

<table>
<thead>
<tr>
<th>Style</th>
<th>How they learn best (or characteristics of this style)</th>
<th>What you can do to meet their needs</th>
</tr>
</thead>
</table>
| Visual Learning by Observing | - Learn by observing, listening, and symbols  
- Think in pictures  
- Summaries and outlines  
- By making personal connections, observing and interacting with people.  
- They want to observe before doing.  
- By interviewing others | - Graphs, Video, Pictures, and visual data, teamwork, role play, brainstorming  
- Games  
- Clear real life examples  
- Opportunities to observe before doing  
- Partner or tutor them  
- Job aid creation |
| Auditory Affective Learners  | - They learn by listening, explaining, talking and engaging in human interaction.  
- They like to talk through issues and are sensitive to feeling and emotions  
- Work in places where they have a soothing background  
- Tend to be more intuitive than rational – feel is more important than logic | - Vary inflection, timbre, intonation and pitch  
- Use metaphors  
- Minimize background noise as much as possible  
- Allow as much opportunity for talking and writing – going with the flow of the moment.  
- Storytelling – learning form experiences  
- Opportunities to share ideas, learning games  
- Trial and error  
- The more they talk the more they learn  
- Small group discussions |
| Kinesthetic or Somatic Learn by Doing | - They learn by physical motion and sense of touch.  
- Tend to speak more slowly and in lower voices than others  
- They get bored easily with lectures, presentations and computer-based learning.  
- They like to get things done quickly. They are direct and to the point. | - Describe using feelings  
- Team Learning  
- Learn by doing – practical, hands-on approach  
- Get to the “doing” part quickly.  
- May doodle or other manipulations while in class – squeegee balls are helpful. |
| Intellectual Learn by thinking and Analyzing | - Learn by reason and critical thinking rather than emotion.  
- Need the facts and prefers to hear from the experts.  
- They are logical, rational and thoughtful.  
- They are sequential processors – like a step-by-step flow.  
- They dislike indecisiveness. | - Use case studies that allow for problem solving.  
- Technical approaches  
- Reference books and research findings  
- Use of factual lecture  
- AVOID playful learning experiences that have no intellectual depth. |

*Based on Learning In Style, the Center for Accelerated Learning  
www.alcenter.com Sign up for free online assessment
### Generational Learning Styles

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Setting</strong></td>
<td>Don’t rush things – remove any stress from the setting, make it risk free/ orderly/ stable. Use traditional classroom style.</td>
<td>Interactive and non-authoritarian. Allow teamwork, interaction and networking.</td>
<td>Self-directed environment, like being a free agent. Give them freedom and options.</td>
<td>Teamwork + technology. Give everyone a task. Once they “get it” let them walk around and help others.</td>
</tr>
<tr>
<td><strong>Trainer</strong></td>
<td>Prefer more experienced one/conservative. Establish ground rules early. Don’t be too casual or familiar. Don’t use profanity or poor grammar.</td>
<td>Come across as equal, not as the authority. Use personal stories and examples.</td>
<td>Don’t like specific schedules but like to get things done at their own pace. Get right into the material. They ask a lot of questions.</td>
<td>They need more structure, attention and supervision.</td>
</tr>
<tr>
<td><strong>Developing Rapport</strong></td>
<td>Respect background and experience. Be logical, consistent. They tend to conform rather than take a stand or take an issue on. Don’t call on them and put them on the spot.</td>
<td>Work with Boomers as equal – they have trouble with authority figures.</td>
<td>May need to build a learning contract early on. Have to earn their respect by “knowing your material.” Back off and let them figure things out for themselves.</td>
<td>Mentoring. They have difficulty with difficult people so they like it when they learn how to deal with objections, debates and hard situations.</td>
</tr>
<tr>
<td><strong>Activities</strong></td>
<td>Lecture, straightforward. Don’t like anecdotes that are too personal – like logical material. Present materials in summary form and larger type.</td>
<td>Like working in teams, like spirit. Highly interactive, icebreakers, open discussion. Prefer not to do role playing but need skill practice.</td>
<td>Use resource lists, CD-ROM, DVD, Internet. Use games and fun activities. They love role playing.</td>
<td>Make it entertaining and highly interactive. Use art and music. They are readers.</td>
</tr>
<tr>
<td><strong>Use of Technology</strong></td>
<td>Don’t assume computer skills.</td>
<td>Internet</td>
<td>CD-ROM, DVD, Video, electronic performance support programs, Webinar</td>
<td>Internet, VCRs, CD-ROM, DVD BUT must have state of the art technology.</td>
</tr>
<tr>
<td><strong>Content</strong></td>
<td>Anchor content in tried and true practice. Tie to the good of the company and long term mission.</td>
<td>Like materials that show them how to win and that gives overviews. Use easy to scan format, bullets.</td>
<td>Exercises where they can learn by doing. Use fun activities, experiments, case studies. Few words – lots of graphics.</td>
<td>Tie course to making money and humanitarian causes. Lively and varied, multiple focal points, Reprints of articles.</td>
</tr>
</tbody>
</table>
## Training Media Matrix

<table>
<thead>
<tr>
<th>MEDIA</th>
<th>BENEFITS</th>
<th>HINTS</th>
</tr>
</thead>
</table>
| **Flip Charts** | • Useful for groups up to 25  
• Easy to use and get  
• Can prepare ahead of time  
• Flexible  
• Lined flip charts make it easier to write evenly  
• Some paper has adhesive on the back and can easily be moved around | • Use color, signs, shapes to add interest  
• Make sure chart is readable – letters should be large and limited. Rule of thumb no more than 5 words across and 5 lines down  
• Number them if they will be reused for notes  
• Add pencil notes on side of chart to “prompt” you  
• Tab/label pages for ease in turning and finding topics  
• Put a sheet under the sheet you are writing on so it doesn’t bleed  
• Skip every other sheet so words don’t show thru  
• Don’t use red – many men are color blind and can’t read red  
• Can take quite a bit of time to do many  
• Lined paper helps keep lettering uniform |
| **Overhead Projectors** (few companies use these anymore) | • Room can be lit while using it  
• Transparencies are easy to make and inexpensive  
• Easy to operate  
• Can illustrate things nicely – large  
• Great for large groups  
• Flexible  
• Need a screen | • Don’t walk in front of screen or talk to it  
• Turn projector off when talking and not using a transparency  
• Don’t place too much information on each slide – make sure it is centered  
• Don’t be afraid to write on the slides or use blank slides but have transparency pens or they may not show up well  
• Make sure you’ve tried it ahead of time and that there is an extra bulb. Know how to change it  
• Use a pen or letter opener when pointing to a slide item  
• Place it as far back to get the largest picture you can  
• Use clean transparencies. Replace them when they get dirty |
| **Data Projectors** | • Flexible – allows many more visual options than most media  
• Makes a very powerful and professional presentation  
• Can be used in partially lit room  
• Plugs into a computer  
• Need a screen | • Need to be computer literate and know how to use the projector and attach it to the computer  
• Must try it before you use it – too many possible computer issues can occur  
• Involves several pieces of equipment being used at the same time – may not have the room  
• Using a laptop is easier than a PC that may need to be moved  
• Select appropriate colors for background – usually darker colors show up best with light colored words  
• Use the special effects it offers – adds to the presentation – but don’t over use them because it can distract from the presentation  
• Load to the hard drive or thumb drive if possible – to increase speed  
• Don’t get consumed by operating it and sitting at the computer. Ask someone to help if need be  
• ALWAYS have a backup – transparencies, slides, handouts  
• Expensive and some are heavy to carry around  
• Be careful not to talk to the screen – don’t forget the participants  
• Make sure slides are readable – no more than 5 lines and 5 words is best. The slides should not dominate the presentation. They should bullet your key points. |
## Training Media Matrix - Continued

<table>
<thead>
<tr>
<th>MEDIA</th>
<th>BENEFITS</th>
<th>HINTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Videos CDs DVDs</td>
<td>• Can add reality with case studies, scenarios, samples &lt;br&gt; • Media people enjoy &lt;br&gt; • Better for smaller groups</td>
<td>• Make sure you’ve tried it on the VCR/DVD Player you are using ahead of time  &lt;br&gt; • Set it up at the starting point before class starts to reduce “waiting” time  &lt;br&gt; • Know how to pause it if you are using that function  &lt;br&gt; • Requires equipment – VCR, monitor, DVD Player</td>
</tr>
<tr>
<td>Slide Projectors</td>
<td>• Sturdy, reliable and quiet to operate &lt;br&gt; • Easy to set up and move &lt;br&gt; • Can operate remotely &lt;br&gt; • Good for medium to large audiences (few companies use these anymore)</td>
<td>• They require a dark room  &lt;br&gt; • Talk to audience – not the screen  &lt;br&gt; • Have an extra bulb  &lt;br&gt; • Try it ahead of time to make sure slide placement fills the screen  &lt;br&gt; • Know how to un-jam a slide tray  &lt;br&gt; • Make sure slide tray cover is tighten so slides don’t fall out in movement  &lt;br&gt; • Number slides in proper order for replacement, if needed</td>
</tr>
<tr>
<td>Video Taping</td>
<td>• Presents realistic view of events  &lt;br&gt; • Can always be replayed and used as a learning tool</td>
<td>• Requires lots of equipment – recorder, screen, camera, DVD Player or VCR for replay  &lt;br&gt; • MUST try it out ahead of time and be familiar with use so as not to waste time  &lt;br&gt; • Best for presentation replays or capturing information as it happens like equipment operation  &lt;br&gt; • Can be downloaded easily now and emailed quickly</td>
</tr>
</tbody>
</table>
5 Golden Rules of PowerPoint

1. Don’t give your PowerPoint center stage.
   PowerPoint should AUGMENT your presentation not BE the presentation. If you are too dependent on the slides you may forget the audience by looking at the slides instead of the audience; reading to your audience or if technology fails you are lost if you don’t have a backup.

2. Don’t try to razzle and dazzle with too many slide transitions and sound effects. Audiences can easily be distracted by “too much”. They get old quick. Simple is better. Have all bullets appear at once rather than one at a time. Avoid sound effects – they annoy people and serve no purpose. Don’t use more than one graphic or clip art per slide. Make sure that any graphic or clip art reinforces the message. LESS is MORE

3. Make your presentations READABLE!!!!!
   PowerPoint presentations tend to have too much information on them and a font too small or backgrounds that are hard to read. Use the 5x5 rule – No more that 5 bullet points, 5 words in each line. The PowerPoint slides are meant to give the key points not tell the whole story. If they need to read rather than skimmed, or if you read it all there probably is too much! Minimum font size recommended is 30. Colors recommended are dark backgrounds with light colored lettering. “IF they can’t read it from the back of the room it’s too small.” Don’t use paragraphs or long blocks of text. Use readable fonts, for example; Arial, Verdana, Helvetica for titles and Garamond, Goudy, Palatino for bullets. Avoid detailed reports or spreadsheets - they are too hard to read. Hand it out instead. Avoid over capitalizing – except for titles, of course. LESS Is MORE.

4. Create a logical Flow
   Start with an overview – tell them what you are going to tell them. If they know where you are going they can relax and follow comfortably. Then proceed to tell them but NOT with a series of random bullet points. You are really telling them a story with a logical flow. Then summarize by telling them what you told them.

5. Distribute a handout
   People like to take notes so either have a handout or make reference to the workbook or manual they may already have with them that they can takes notes in. There are several opinions on this. Some trainers don’t like to give handouts because participants at times don’t pay attention as actively. This is a judgment call based on your audience and topic.
Other comments about using PowerPoint:

- People have gotten so dependent on PowerPoint slides and often misuse them. There is a saying that “PowerPoint is to a presenter what a light pole is to a drunk, it gives you something to hold on to but doesn’t necessarily get you anywhere.”

- Many of the points mentioned above pertain to PowerPoint slides being used as a teaching tool or a presentation. At other times PowerPoint presentations are meant as a stand alone presentation or lesson. In that case it’s more common to have much more information on each slide. But still try to keep it picture or graphic focused rather than tons of texts. Remember as the old saying goes “A picture is worth a thousand words.”

- A PowerPoint presentation tells a story so make sure the flow is logical. If it is long it may be good to have small chunks of information followed by a slide with a question or example that reinforces the earlier information.

- To see a Powerpoint slide presentation on how to use PowerPoint in training go to www.pmmi.org/certified and look under the resources tab.
What is E-Learning?
E-Learning is an all encompassing term generally used to refer to computer-enhanced learning, although it is often extended to include the use of mobile technology such as PDAs and MP3 players. It may include web-based teaching materials and hypermedia, online books, multimedia CD-ROMs, DVDs, Websites, discussion boards, off-the-shelf catalogs, collaborative software, online collaborative forums, email, blogs, wikis, computer-assisted assessments, online FAQs, simulations, games, electronic voting systems, Virtual Reality Training (VRT) etc. There are other names associated with E-Learning, including:
- Internet based Training (IBT)
- Online Books or Training Catalogs
- Computer Aided Learning
- Online Learning
- M-Learning (mobile)
- Distance Learning
- Virtual Learning
- Blended Learning (This just means you utilize a variety of techniques, one of which is some form of E-Learning)

What are the Advantages?
- Flexibility, can amend as needed
- Convenience
- Greater adaptability to the learner’s needs
- Variety in learning experience
- Consistency of delivery
- Human interaction can be encouraged through audio or video-based web conferencing programs (Ex. Webinars)
- Meet the needs of Gen X and Yer’s who are techno savvy
- Can be cost effective if there is a large audience that must complete the same training (Ex. Safety or regulatory training in a large corporation)
  Think “economy of scale”
- Can be utilized for Knowledge Management to store and transfer learning
- Can be used as an assessment tool providing instant feedback.
- Can provide “learning on demand”

What are the disadvantages?
- Costly – high upfront investment
- Time consuming to develop, validate, approve
- Must hire a person with these specific skills to develop E-Learning programs and work with students online or outsource/offshore it
- 70% of E-Learning never gets used
- There is a feeling of isolation with many forms of E-Learning such as distance learning or self-study online courses
- Often there is a need to also develop adaptive materials
• Retention rate is typically low unless supplemented with other venues (ex. Discussion groups, face-to-face events, Webinars, coaching etc.)

**Important things to Consider**

- **Who is your audience?** The audience most receptive would be those that are computer literate, like working at their own pace or on their own and have easy access to utilizing it. Larger companies that have a more sophisticated workforce (Ex. Hi Tech, Pharmaceuticals, etc.) and that have many people to train on the same topic/equipment are most likely candidates. You need to ask yourself a few questions:
  - Who will use this? What is their educational level? Are they Computer literate?
  - Will the end-users have easy access to using it?
  - Do you have enough customers (internal or external) that need the same training, making it worth your time and expense to do? (economy of scale)

- **When and how will it be used?**
  - Is the material likely to change frequently, making your training outdated quickly? (That will definitely help you determine what form of E-learning you may select to pursuit.)
  - Will this be a stand alone teaching tool or a supplement to your customer’s internal trainers? Will it be a part of a blended learning approach?
  - How will you monitor its effectiveness?
  - Will there be online assessments for you to review?
  - If most of the critical training you do is on the equipment, what role will the E-learning play? Is it expected to replace the OTJ training?
  - What sort of adaptive materials/venues will you have to supply to make it effective? (Ex. evaluations, job aids, Webinars, online discuss groups, help desk, etc.)
  - Does your customer have the equipment required to use your e-learning or will it require them to purchase or upgrade some of their systems? (added cost) Can it be integrated?

- **How will we price it? Who will pay for it?**
  - Will E-learning replace classroom training? Will it be priced at the same level that OTJ training would be?
  - Can we make any money on it?
  - Will customers be willing to invest in customized development for their specific application?
  - Should some training be online and some OJT? Is some free, some billed? Should it be “bundled”? (Some say that they typically charge 80% of the cost of classroom training.)
Manufacturing Applications
You may be wondering who is using it, what are they actually doing (what form of E-Learning), what do customers want, what are some examples.

Who is using it? What are they actually doing?
Examples

Equipment Vendors (OEMs)
Most equipment vendors are using some form of E-Learning, but mostly at the lower end of the spectrum – the CD ROM/DVD (technically not E-Learning) or online reference manuals. If you are not providing electronic copies of your manuals and training materials then you are definitely behind the times and need to look at making this small investment. Most customers mandate an electronic copy. Whether they use it or not is another story but they WANT one!

- Some OEMs that have smaller, easy to use, low cost equipment (especially for customers with high turnover) use videos/CDs/DVDs and job aids as their only form of training. (again, this is technically not e-learning)
- Some OEMs are starting to offer free Webinars/Webcasts/Podcast as a sales and training tool. This venue may serve also as reinforcement to training previously provided.
- Videos/CDs/DVDs that show troubleshooting on real problems are also very common and helpful during training since they show trainees circumstances they may encounter that can’t be simulated during formal OTJ training.
- Others offer access to training material and/or services (ex. help screens or access to their training libraries) as apart of their training and/or equipment package for a certain period of time. After that “free” period, they may have to subscribe to continue the service. These may be on their websites. A special password is usually required to access them.
- Some, like Allen Bradley, offer (among other E-Learning) assessment tools online to help individuals decide what class they should take. Check it out – its well done - [www.rockwellautomation.com/training](http://www.rockwellautomation.com/training) You can review the catalog as well as get a 5 day free trial of some of their self-paced learning tools.
- Another tool showing up more often are products that capture problems while in action that can be played back to solve problems. These playbacks serve as excellent learning tools as well as good troubleshooting. (HINDSIGHT is an example of this.) They can be sent via the Internet for feedback and troubleshooting.

Many OEMs are just now looking into what type of online E-Learning customers will value that is cost effective. You need to answer the questions on the previous page before you decide what approach you want to take.

Customers
Again, most customers use some form of E-Learning.

- Large companies tend to use it extensively for safety and regulatory procedures. It satisfies legal obligations and reaches the maximum amount of people. It is flexible and self-directed, making it extremely convenient. They may also use off-the-shelf programs for soft skills or IT training. TPC.com offers many maintenance classes online. [www.tpc.com](http://www.tpc.com)
• Most customers also have some form of troubleshooting capabilities on their HMIs (panel view screens). A few have “expert systems” but they are costly.
• Many larger companies utilize some form of distance learning, typically video conferencing or a Web-based provider like WebEx. The key here, if you are thinking of this as a cost effective approach, is to make sure the system you choose is compatible with your customers. Webcast/webinars are also very common at and with your customers.

Customers will use whatever you provide but they typically don’t want to pay extra for it. E-Learning is looked at as a way to deal with the need for training—on-demand, especially during this era of headcount reductions. However too many companies don’t look at the low retention rate many E-Learning venues have if used independently or the technology cost needed to run it.

What are some resources that I can refer to?

• **WebEx** – This is a business communications organization that provides Web Meeting and Web Training vehicles such a video/audio Webcasts that you may want to utilize for training. For a free demo of their capabilities go to [www.webex.com](http://www.webex.com). They also have their own University with many course on this topic available. Go to their website for an excellent 30 page booklet (you can download) called BEST PRACTICES IN ONLINE CUSTOMER TRAINING.

• **JOIN ME** – free trial web conferencing site. After initial trail a small charge. [www.join.me](http://www.join.me) They also have mobile apps.

• **Evernote** – Good for knowledge management. it also lets you draw on documents, or images and then place them in groups for a step by step guide.

• **Content Creation Tools (FREE)** - Blogtalk Radio, MentorMob, Audacity, Stitcher, Animoto, Go Animate

• **Bersin & Associates** – A leading research and consulting firm that focuses on E-Learning technologies and implementation. Free short research papers/case studies can be viewed at their site. One excellent paper is The 4 Stages of E-Learning.
Go to [www.bersin.com](http://www.bersin.com) or [www.elearningresearch.com](http://www.elearningresearch.com)

• **Articulate** – This is a provider of Rapid E-Learning Training. If you need short E-Learning modules in a hurry Articulate has a product. Visit their website at [www.articulate.com](http://www.articulate.com) – There is a daily (weekdays) Webcast to explain how you can create effective training modules from PowerPoint presentations in 1 day to 3 weeks.

• From **Wikipedia**, the free encyclopedia, put in E-Learning. [www.wikipedia.com](http://www.wikipedia.com) There are many articles to select on the topic.
• **Articulate** – This is a provider of **Rapid E-Learning Training**. If you need short E-Learning modules in a hurry Articulate has a product. Visit their website at [www.articulate.com](http://www.articulate.com) – There is a daily (weekdays) Webcast to explain how you can create effective training modules from PowerPoint presentations in 1 day to 3 weeks.

  There are several articles to select on the topic.

- KnowledgeShift [http://www.knowledgeshift.net](http://www.knowledgeshift.net)
- Josh Bersin [http://www.bersin.com](http://www.bersin.com)
- Elliott Masie [http://www.masie.com](http://www.masie.com)
- Articulate, Captivate, CourseAvenue
- iLinc, WebEx, Instant Presenter, Smart Board
  - [www.ilinc.com](http://www.ilinc.com), [www.webex.com](http://www.webex.com), [www.instantpresenter.com](http://www.instantpresenter.com)
- LMS (learning management systems)
  - [www.saba.com](http://www.saba.com), [www.trifus.com](http://www.trifus.com) [www.sumtotal.com](http://www.sumtotal.com)
  - [www.geolearning.com](http://www.geolearning.com)
- eLearning Guild [www.elearningguild.com](http://www.elearningguild.com)
- Online Training
  - [http://www.trainingmagevents.com/learninggroup/subscribe/index.jsp](http://www.trainingmagevents.com/learninggroup/subscribe/index.jsp)

As a part of the class requirements you’ll have the opportunity to complete a short e-learning module on safety.
Training Trends –

Technology continues to have an impact on training/learning options. As with any technology it often is short lived and needs continual updating to stay current. A few trends include:

Blended Learning (referred to on page 110)

- What is it? Blended learning is a formal education/training program in which a student learns at least in part through online delivery of content and instruction with some element of student control over time, place, path or pace. In manufacturing in particular this is a critical element. This approach is very commonly used now.
  - While still attending a “brick-and-mortar” school structure (like this class), face-to-face classroom methods are combined with computer-mediated activities (like the safety e-learning or PMMI webinars).
  - PRO’s - Proponents of blending learning cite the opportunity for data collection and customization of instruction and assessment as two major benefits of this approach. It also increases retention, adapts to generational learning styles as well as offering flexibility.

VIDEOS –

Some customers request that the training be video taped (or at least certain tasks). That way they can repeat the training and have a accurate sample demonstration. This helps with turnover training issues too. These videos can be utilized on Apps, You Tubes, Smart phones and other electronic equipment.

HMI SCREEN INSTRUCTIONAL PAGES - Some customers request these especially if there is a particularly tricky procedure or one not often needed. They would like to see it accessible on the HMI. This may require a significant effort. This has been done in the past and at times there is too much information/text and few graphics. If instructional job aids are added in a user-friendly way they could be very effective.

TRAINING/INFORMATIONAL APPS

In this day of smart phones the use of APPs in general is very common. Some OEMs are exploring having Equipment Apps for their customers. This may have a variety of basic operational procedures, FAQ’s, and Troubleshooting procedures to use as a quick reference or job aid.

ONLINE TRAINING CONTENT LIBRARIES/LEARNING PORTALS

Similar to the Training APPs an equipment manufacturer may want their customer to have total access to all documentation related to the equipment purchased such as the manuals, drawings, training procedures, job aids etc. They would then set up the library for the specific piece of equipment purchased and offer it on a free basis for the first year followed by paid access after that. It could also be an additional cost to the purchase price. The customer would then have a specific access code for this learning portal.
UPSIDE DOWN LEARNING – This is a learning/training approach where the trainees are responsible for learning the content on their own through manuals, videos or other forms so when they get to the formal class it’s totally dedicated to the application or try-out of the content.

MOOC - A Massive Open Online Course (MOOC) is an online course aimed at unlimited participation and open access via the web. In addition to traditional course materials such as videos, readings, and problem sets, MOOCs provide interactive user fora that help build a community for students and trainers/teachers. MOOCs are a recent development in distance education. Courses may be developed and submitted like content is to Wikipedia. Some references currently are Coursera, Edx, Udacity. It may become an effective tool to transfer knowledge like Khan Academy does. www.khanacademy.com. This would also be a good way to develop training “communities of practice”’. Currently it’s most used in educational environments.

USE OF TABLETS

The use of tablets can be seen everywhere and most recently in the training arena too.

Some of the most critical elements when deciding are:

• **Consider the type of tablet** - very important. You want to make the decision based on HOW they are intended to be used.

• **Consider the capabilities** – For example, the iPad doesn’t have Adobe Flash, although that should be resolved. Some being used now are Microsoft Surface, Samsung Galaxy Tab 3, HP Elites. Many tablets only have the lower end of Windows software and may not have a USB port. The Surface Pro for example has the higher end Microsoft software + plus a port. **It’s important to test your PowerPoint and video platform before you purchase them.**

• If you use them during your training be careful they are not a distraction or seen as a toy. **Have focused applications for their use.**

• **Consider how robust** they are in a manufacturing environment.

• If you plan to use tablets **make sure your audience has the needed skills.** This would be a good question to add to your “needs assessment.”
Getting Trainees to Relax

**How do you get TRAINEES to relax?**
(Answers from perspective of past participants and trainers)

- Find something you have in common, or that they all have in common. There is an icebreaker that helps here. Give the group a short time to find as many things as they can that they all have in common. It’s fun and does break through the uneasiness.
- Talk about past experiences – perhaps where people were afraid of the new skills, in the past, and how they overcame it, or how they realized it wasn’t very different than what they already knew.
- Make them see how easy it can be to pick up the new skill – or if it’s something difficult, explain how you’ll go step by step and will demonstrate several times.
- Be friendly – don’t jump right into talking about the job. General introductions help.
- Joke around – laugh, be yourself but don’t try to tell jokes if you are bad at it.
- Point out mistakes you’ve made so they know you’re human and had to go through a learning curve too.
- Let them know that what they will be learning is important to their jobs, especially if it will make it easier.
- Explain that your job is to work with them so they won’t need you later on.
- Use a positive approach – give positive feedback often.
- Let them know they can ask questions, whenever. Then, make sure you are open and respond to them.
- Get the feel for the people – don’t dominate, LISTEN.
- Set the room up in a circle or U-shape rather than traditional classroom-like rows.

**Step 2: Presentation Steps**

**TELL** them the “big picture”

- Explain the total system and where the task or piece of equipment fits into the system (use a diagram or flow chart if possible).
- Explain the benefits of the new equipment/system and how it will affect their jobs.
- Explain what their role/responsibilities will be.

**SHOW** them part by part, step by step

- Go slow
- Allow questions
- Ask questions
- Encourage their questions

**EXPLAIN** the reason for doing each step

- Highlight proper sequence
- Explain consequences of going out of sequence

**DEMONSTRATE**

- Stress key points
- Offer hints
- Emphasize SAFETY
The ability to ask questions is one of the most important skills a trainer can have. Questions serve many purposes, such as:

- Helping you to check if learning/understanding has occurred
- Helping you identify where additional information or repeated instruction is needed
- Helping you get people involved and interested
- A great tool for troubleshooting
- Helping you to design job aids
- Helping to give you a reality check
- Helping you to focus a group
- Helping you to deal with difficult trainees

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<th>TYPE</th>
<th>PURPOSE/SAMPLE</th>
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| Open Ended | Ask these questions when/to:  
• You’re getting acquainted with trainees  
• Help people relax  
• Looking for information  
To get people interested:  
Start with one of the 5-W’s – who, what, when, where, why... and how  
**Examples are:**  
• Tell me about yourself, your interest etc.  
• What type of jobs have you held? What do you like most about your job?  
• What are some of the reasons we use guards on the side?  
• Why do you think the alarm system went off? |
| Closed     | These type of questions are very focused and are used to:  
• Get a specific answer  
• Refocus a group/trainee  
• Cut a long winded answer short  
• Identify agreement or disagreement  
**Some examples are:**  
• Will the motor start when you push the on button?  
• The main topic we’re focusing on now is?  
• Name the three types of motors?  
• Will the system always go off when an alarm goes off?  
Closed questioning is one time when “yes or no” type questions can be appropriate. |
| Probing    | You use probing questions:  
• When you want an explanation or more depth  
• When you are trying to get someone to relax  
**Some examples are:**  
• Can you explain a bit more about what you just said?  
• What makes you say that?  
• Can you describe that again in different words? Or give an example? |
As an instructor you will use a variety of questioning skills

1. Asking good questions
2. Encouraging trainees to ask questions
3. Responding to questions effectively

Questions are key to getting trainees interested and motivated. Once you get them involved, the training session will move much smoother. Questions not only get trainees to think, they get them to ask questions about what is being taught which helps to keep them focused.

As an instructor you need questions to help you get the needed feedback to ensure learning has occurred, as well as a frame of reference about how well you are doing. They also give you the opportunity to respond with positive feedback to the trainees.

How do I know I’m asking good questions?

• You get the response in the detail you were looking for
• Trainees are involved and interested
• Trainees are asking questions too
• You know they understand by the depth (or lack of) and specific nature of their response

**HINT**

Questions should be clear, easily understood, specific and thought provoking. Feedback from your trainees will let you know if your questions don’t meet these guidelines. Usually rephrasing is the best tool you have if your questions weren’t understood.

**Don’ts**

• Don’t ask questions that give you a “yes” or “no” answer. Few people will say ‘no’ and even if you get a ‘yes’ or ‘no’ it doesn’t usually verify knowledge or understanding. THIS IS THE MOST OFTEN VIOLATED PRINCIPLE OF EFFECTIVE QUESTIONING!!! Be careful.

**Examples**

• Do you have any questions?
• Do you understand?
• Do you want to demonstrate now? (If they say “no” it may cause some conflict)
• Don’t ever embarrass someone that has given an incorrect answer. Examples would be “No, that’s the wrong answer,” laughing at the answer, or making a frowning facial expression are not appropriate.
• Don’t ask trick questions – they may intimidate the trainees. They serve NO purpose.
Is there a proper order to ask question in?

• Typically ask the whole group a question first. You are asking open ended questions to get the discussion flowing.

• Allow time for someone to answer. That “pregnant pause” is usually much longer than it feels. Don’t let it get to you by jumping in before someone has a chance to answer. This is often one of the hardest things for trainers to do, especially new ones. If you jump in in this usually sets the stage for the group and you will tend to just go on talking/answering all the time. If no one volunteers after a long period, rephrase the question – perhaps use another open ended question or a closed one if you want just one piece of information that is easy to answer and can get someone to speak up. You may use the nominal group technique (See below & p. 79) also.

• Get as many people to talk as possible. Again, using the nominal group technique is very helpful and easy to do. Don’t just feel relieved when one person talks and keep going back to that person.

• Once answers do come you’ll probably be using probing questions for more details.

• Always give feedback. This helps the trainee to know he/she was heard and understood. Give positive recognition of their participation.

How do you get people involved with questions?

One of the best ways is to use the nominal group technique. At the beginning of your session tell them, “During our training session I’m going to ask a question about a specific topic and go around so that everyone can make a comment about that topic, give feedback, ask a question or express a concern. If for some reason you don’t want to contribute feel free to say pass. I’ll come back to you later.” If they “pass” don’t make a big deal out of it. They may just be “testing” you to see if it’s ok.

The important part is to tell them upfront what you are going to do. That way you are setting your expectations upfront. Usually it’s hard to get the first person talking but this way you just start with one and go around to everyone. You’ll be pleasantly surprised at how much involvement this creates. It seems to take the pressure off since everyone is now expected to give input. The important thing to remember here is to respond positively and constructively to everyone so they feel at ease in contributing. There is no place in training for rude “you’re wrong” comments – either verbal or non-verbal – from the trainers. (Refer to p. 79 also for more on nominal group technique)

Hint

We use the nominal group technique in training to get everyone involved and to get a wide range of opinions, thoughts and questions.
How do you get trainees to ask questions?

- Start with a question like, “What question do you think a person new to this equipment/process might want to ask?” This is the THIRD PARTY APPROACH. By doing that you aren’t putting the person on the spot, you’re just suggesting what someone else might want to ask.

- Use examples from other classes to illustrate how helpful questions have been in the past. Make them funny too – things you’ve asked that were crazy but helpful.

- Have each person write one question down on a card. (I caution you on this if you have non readers and/or non writers, in which case you would never do this.) If you are not sure you could always hand out cards and say, “if at some time you want to write a question down please feel to use these cards.” However, encourage them to ask.

- Always stress that NO QUESTION IS STUPID and that usually someone else wants to ask it too. Give examples of what might appear to be a stupid question and show how helpful it is.

- Make a game out of this – ask them to create questions to see who can “stump” the others or use them just for reinforcement of the learning. (Example: When is break?)

How do I answer questions?

The easiest way to think about this is to put yourself in the trainees footsteps. They are a bit fearful of anything new and don’t want to look stupid. They want to succeed so they need ENCOURAGEMENT and PATIENCE. Everyone learns at different speeds so allow flexibility in their learning styles.

People also learn in “spurts.” You may see no comprehension, then all of a sudden they “get it,” then a flat plateau where additional learning stalls, then bam another spurt of learning. This is very typical.

When someone asks a question:

- Listen to the whole question before you “jump” in. If you were doing something else put that aside so the trainees know you really are listening. This may also mean turning off a projector. An easy rule of thumb is STOP – LOOK – LISTEN!

- Respond with positive feedback or ask the other trainees if they have the answer. This keeps them thinking and involved. It helps them to do their own troubleshooting and builds their confidence. You already know the answer – it’s your job to help them learn or discover the answers. The less you do the more they have to do, the greater the comprehension.

- Show appreciation and encouragement for their contributions.
What do I say when someone gives me a wrong answer or just doesn’t know the answer?

Here are some options, depending on what they say or don’t say…

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<th>POSSIBLE RESPONSE</th>
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| Although their answer is wrong, it’s close. Some of it is accurate, some isn’t. | • Ask if they could explain their answer a bit. They may have the entire answer or be clearer the second try. (Probing question)  
  • Explain how/where it’s accurate and add the additional information to make it correct in a very constructive way.  
  • Give positive feedback and ask if anyone wants to add more to the answer. Just make sure that they understand the inaccurate part of their answer. |
| The answer is totally off base.                        | • When you start asking questions, mention that you’ll be asking many people for their thoughts about each question – not just one.  
  • If others seem confused too, say “I think I should explain this again, I’m not sure I did a very clear job of it.” Put the burden on your own shoulders – not theirs.  
  • Probe why they think that, if appropriate – this often helps you to understand what you said that wasn’t clear. |
| Answer is correct but not detailed enough.             | • Compliment them and ask if they could go into more depth. (Probing question)  
  • Ask if anyone else could give additional thoughts/information.  
  • Ask another follow up probing question that gets to the greater detail you are looking for. |
| Trainee gives you a blank stare.                       | • Ask an easier question – one you are sure he/she knows.  
  • Rephrase the question.  
  • Don’t belabor it, move on and ask someone else without any negative comments or non verbal behaviors. |
What do I do when I DON’T know the answer?

• **NEVER PRETEND** you do have the answer and make one up so you don’t look bad. If you make something up remember you may get ‘caught’ later and will lose a lot of credibility. This is so prevalent yet so unnecessary! We are all human and therefore don’t know everything.

• **BE HONEST.**
  
  Acknowledge what a good question it is and:
  
  - Say you don’t know/have the answer.
  - Open it up to see if anyone else might have an idea.
  - Write it down on the “Parking Lot*” or other such place and tell the class/trainee that you will research the answer and get back to them. DON’T FORGET TO DO THIS AND GET BACK TO THEM.

• **MAKE A GAME OF IT** – along with your own research, ask the trainees to give out suggestions about who might be the best person to ask. Offer a fun, simple prize to the first that finds it. (Cup of coffee, pen etc.)

The Parking Lot

The Parking Lot is to be used to place topics/questions that:

• Are off the subject being discussed
• Are important but not at this time
• Should be remembered
• Will be reintroduced at a later time
• No one has the answer to and you don’t want to forget

The main purpose of having a “parking lot” is to use the time you have in the most focused and efficient way possible. By writing these questions/concerns down you are respecting them BUT they are not distracting from the topic that needs to be discussed. Items listed on the “parking lot” should be followed up in whatever way is most appropriate. At times the topics are removed as they get discussed or become unimportant. A flip chart or board is the best place for a “parking lot” – that way everyone can easily see it.
Active Listening

Being an active listener is another important trait of a good trainer.

**An ACTIVE LISTENER.....**
- Shows respect to everyone
- Has good eye contact
- Paraphrases statements, restating content to show understanding
- Lets individuals complete their own statements
- Acknowledges individual concerns
- Tries to understand other’s points of view

**An ACTIVE LISTENER DOESN’T**
- Offer value judgments (“you’re wrong”)
- Fidget, pace the floor
- Get impatient
- Complete the speakers statements
- Over react to emotional words
- Judge others
- Interrupt rudely

**Listening**
- Brings out the best in others because it makes them feel worthwhile and important
- Promotes respect for you and the other person
- Builds trust
- Helps in handling problem situations
- Creates a base for problem solving and greater efficiency

Everyone knows the impact of NEGATIVE non verbal communication, especially insecure trainees who are expecting not to do well. Your body language can be more harmful than your words! So be very careful.
Non Verbal Communication

Can you guess what each of these trainers are thinking? How they are making their trainees feel?

**Negative Non Verbal Communications often occur when:**
The trainer is inexperienced and is more concerned with “getting the training done” than in the trainees actually learning something. The trainer is actually feeling insecure and afraid and the trainees will know it.

He/she may not enjoy training and be impatient.

He/she is frustrated by the lack of progress being made by the trainees.

**When you feel that way…**

- Take a deep breath and try to relax – rushing through things, especially thinking you are ‘catching up’ isn’t helpful.
- Be more accepting of yourself and learn from each experience.
- Try to identify a trainee who does seem to be ‘getting it’ and ask for that person to demonstrate or explain. This gives you time to regroup your thinking and just listen. You may ‘get’ why the trainees aren’t learning when you see someone else explaining. This also shows respect to the participants. Trainees sometimes listen to one of their own more because they are speaking in their language/words.
- Try to think of a time you felt like the trainees and laugh at yourself.
- Call a break, if possible and needed.
- Remember you have to be there – make it fun and interesting for yourself. Why waste time feeling bad when you could feel good about yourself and others.
- Smile, it helps to relieve tension!
Step 3: Try-Out (Say and Do)

- Have trainee talk through the job
- Have trainee instruct the trainer on how the job is done
- Have the trainee DO the job – small part at a time – explaining what he/she is doing
- Provide feedback – both positive and constructive
- Let trainee practice
- Offer additional hints

Step 4: Follow Up

- Let trainee work alone
- Encourage questions
- Check frequently and give feedback
- Taper off
- Be positive and encouraging
- Ask for their input for job aids
- Tell the trainees who/where they can go for additional help if you aren’t there – both internally, in materials and externally

On-the-Line Training

On-the-Line Training is very important to the success of industrial training. It’s really the most critical element to learning for the trainees. Here are a few guidelines:

Doing is best.

Adult learners tend to absorb and learn faster by “doing” rather than talking about something. Typically the ratio of classroom to on-the-line training is about 20:80. Yes, 80% (or more) of the time should be DOING – that could be on-the-line or on a simulator.

Start in a classroom.

Although doing is best, the classroom is a good place (because it’s quiet and easier to focus) to start your session so you can give the trainees an overview of what you are going to be doing. You’ve probably heard the old training process:

- Tell them what your going to do (Prepare them)
- Tell them (Present & Try Out)
- Tell them what you told them (Follow Up & Reinforcement)

Noise and space are problems.

Since it’s usually noisy and it’s hard for many to see it’s best to work in small groups of 5 or less — 3 is ideal. If that isn’t possible, try to break the larger group into smaller groups. If possible have an internal trainer work with one group and you the other. If there are no internal trainers, try and identify the trainee who seems to have the highest level of understanding to help you. (Encourage your customers to develop internal trainers.) Trying to train a large group on-the-line wastes time and tends to distract many in the group. You’ll see
unrelated side conversations starting, eyes wandering as well as people walking away to go on breaks or to the rest room. You may also want to teach a smaller group, and have the others observe and give them specific things to look at or even a simple job aid to follow. Then switch.

**PLAN HOW YOU WILL DELIVER YOUR ON-THE-LINE TRAINING WELL.** To do this you need to have a good idea about how many may be in your training session... but don’t be surprised if that number varies considerably. Have many versions of your plan. Here are a few:

- Train on-the-line in small groups (3 – 5)
- Use internal trainers to help
- Teach small steps at a time
- Switch groups often
- Give those not on the equipment a simple job aid to refer to
- Encourage the development and use of internal trainers

**Prepare for the use of the line**

So many times industrial trainers assume (or are told) an area is ready for trainees use. However, so many times it isn’t because:

- The installation has gone slower than expected and they can’t afford to let you work on the equipment until installation is done.
- No one communicated with the line supervisor or project engineers that you’d need to be on-the-line so it’s already in operation.
- You’re there but there is no power to the line.

It’s best to discuss this issue while you are setting up your partnership agreement **BUT** it’s also a good idea to do your own follow up and communication. **VERIFY** the line is ready, powered and available – as soon as you get there to train!! You’ll be happy you did.

**Let everyone TRY**

In the 4-Step process TRY OUT is #3. It’s not enough to let one person try. They all have to try. You can’t learn without doing when it comes to equipment operations, and doing it once isn’t enough. Discuss with the line supervisor and internal trainers how the trainees can get additional practice time when you are gone.

**Develop Contingency Plans**

What other suggestions do you have?
Follow Up Hints

In the Classroom
- Repeat a task then have someone (or many others) feed those steps back to you.
- Ask probing questions, looking for specific knowledge.
- Have the trainees develop the questions, then throw them out for open discussion. (What do you think the most important questions would be about this process/task etc?)
- Make a follow up game with the questions. Jeopardy is a popular way to do this, adding fun competition – if your group is appropriate. You should have developed this ahead of time as a final verbal summary.
- Administer a written evaluation. Be careful here – don’t attempt this if reading and writing skills are limited. You may have graphics or diagrams instead of words. Caution: This may seem too much like school and not really tell you if a trainee has learned. **Performance demonstrations are usually best in industrial settings.**

On the Equipment/System/Line
Follow up is the most effective way to evaluate industrial learning. This may be on the actual equipment or on a simulator.
- Identify the processes/task you want to evaluate.
- Create a “Performance Check” for each (see p. 156).
- Ask each trainee to demonstrate that task.
  - To identify if they can perform it alone
  - To identify what additional training/coaching is needed
- Give positive feedback to trainees.
- Ask for their thoughts on areas that need additional support.
- Develop a follow up plan with internal staff (internal trainers/supervisors).
- Once the line is running and the trainees are performing the new tasks stop by to see how they are doing, see what questions they have, give them compliments. If you are not there, identify someone else who could do that.
- Build up a list of questions as they come up and communicate the answers to all or use them as a verbal quiz.

(Sometimes assigning “learning partners” can be very reinforcing and helpful to retention.)

With Customers
One of the most effective plans is to schedule short follow up sessions with trainees to review the areas which need additional training, coaching or support on. Ask customers to collect data on downtime causes and areas that trainees need **refresher training** on so this can be very focused training. This will be well received by trainees and save dollars long term by the reduction of downtime. Usually these follow up topics will be very evident and easily identified by the trainees as well as the supervisors. Internal and external resources can be used for this. Develop a “follow-up” plan once your formal training has been completed. Recommend specific “refresher” training.
Now that the formal training has been conducted these are the follow up recommendations:

<table>
<thead>
<tr>
<th>What</th>
<th>By When</th>
<th>By Whom</th>
<th>Targeted Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>
### Template – Trainer Evaluation Form

#### How Good of a Trainer are you?

<table>
<thead>
<tr>
<th>When you PREPARE to train do you?</th>
<th>Always</th>
<th>Frequently</th>
<th>Rarely</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Have a lesson plan?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Break down the job into small “chunks?”</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Have materials ready?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Arrange for the training area?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

When you PREPARE someone to learn something new do you?

| • Put him/her at ease?                             |        |            |        |
| • Find out what is known?                          |        |            |        |
| • Get their interest?                              |        |            |        |

When you PRESENT the procedures do you?

| • Tell?                                            |        |            |        |
| • Show?                                            |        |            |        |
| • Explain?                                         |        |            |        |
| • Demonstrate?                                     |        |            |        |

When you have the trainee TRY OUT what has been learned, do you?

| • Have the trainee perform the steps?              |        |            |        |
| • Have the trainee explain the key points?         |        |            |        |
| • Offer constructive and positive feedback?        |        |            |        |
| • Explain again as needed?                         |        |            |        |
| • Respond to and encourage questions?              |        |            |        |
| • Listen actively?                                |        |            |        |

When you FOLLOW UP to see if the job is being done properly, do you?

| • Have the learner work alone?                     |        |            |        |
| • Tell them who they can contact if you are not there to help them? |        |            |        |
| • Encourage questions?                             |        |            |        |
| • Give feedback?                                   |        |            |        |
| • Check frequently?                                |        |            |        |
| • Taper off?                                       |        |            |        |
Training Demonstration Performance Check

This feedback can be given to the trainer after doing the demonstration. It can be done by the observers and the instructor.

1. What about the presentation worked well? Felt good? Why?

2. What about the presentation could be improved? (Be specific)

3. What area was most difficult to understand? Confusing to listen to? How could it be done differently?

4. What area was totally forgotten?

5. Where did the trainer really “shine”? What was best about the presentation?
Before you do your training demonstration jot down some notes on this worksheet to help prepare yourself and to make sure you are including each step.

**Prepare:**
What are some things you can say and do to the trainees to relax them? (Write an open ended question)

What might you ask to find out what they already know? (Write a closed or probing question)

What are some small chunks you would divide your presentation into?

**Present:**
Describe the “big picture” (where this fits into their job, why it’s being done).

Describe how you would tell them what you are going to do today.

Write an open, closed ended and probing question that you could use during your presentation. (refer to p. 116).

- Open
- Closed
- Probing
Try-Out
What is a positive way to respond to the trainee when he/she does the task wrong?

What is a positive thing you can say to encourage the trainee during this time?

How would you ask the trainee to “tell” you how to do the task before actually allowing them to do it? Why do you do this step, why not just let them do it?

Write a probing question that would help you know if the trainee understands the task.

Follow Up
What is a specific way of reinforcing that your trainee has done the task accurately? What might you say? Do?

What could you say to your trainee so they know where to go for help if you are not around?

Write a probing or open ended question you might use at this step.
SECTION 4

INSTALLATION AND ONSITE TRAINING BASICS
Overview

Before that eventful day when your equipment is finally being installed, several things should be completed or at least well along into the process. They include:

• Agreement of expectations
• Training scheduling and logistics
• Development of training documentation

Training Partnership - Agreement of Expectations

Expectations should have been completed earlier when you discussed and developed your partnership agreement. (Refer to p. 66-67). You may want to take it out and make sure it’s complete, or make adjustments as needed. If you haven’t completed one it now is a MUST for installation and training success. The key components are:

• Expectations of one another, as well as mutual responsibilities
• Targeted training goals
• How you’ll resolve issues when they come up

Scheduling and Logistics

Scheduling and logistics can be very tricky during installation and training because they tend to be moving targets. Training often responds to installation in a domino manner - a delay in one often affects the others. So the “key” here is flexibility and always having contingency plans. (ex. If we can’t formally train, can the crafts people help with the installation during the period they were supposed to be in training? Perhaps just the internal trainers?) Because so many people are affected by training schedules it’s important to:

• Provide them with as much detail as possible.
• Keep schedules updated, available, and visible

Here are two sample schedule formats that may be helpful for you to use.

Scheduling

The following schedules should be agreed upon between the vendor and customer and integrator, if there is one on this project, but typically it would be the customer or integrator who actually prepares them since they have access to the rooms, people and equipment. (Share these formats with them.) It’s good to remember that at any time your equipment may just be ‘one of many’ being installed at the same time. That’s where these schedules become particularly invaluable for all involved.
Template – Weekly Schedule

The weekly schedule gives a good overview of who will be in training and what day it will take place. It could also list names for each group if duplicate training (usually to meet shift or group size requirements) is required. Having the specific training listed on this schedule is very helpful.

<table>
<thead>
<tr>
<th></th>
<th>Operators</th>
<th>Mechanics</th>
<th>Electrician/ET/Engineers</th>
<th>HVAC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>AM</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>PM</td>
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<td>Tuesday</td>
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<td>PM</td>
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<td>Wednesday</td>
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<td>PM</td>
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</tr>
</tbody>
</table>

Prepared by:           Date:  
Revision Date:
**Example – Weekly Schedule**

Your schedule would include the name of the specific training along with the Group number noted below.

<table>
<thead>
<tr>
<th>Week of January 15th - 1st Shift</th>
<th>Revision:</th>
<th>Date:</th>
<th>Time:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Operators</td>
<td>Mechanics</td>
<td>Electrician/ ET / Engineers</td>
</tr>
<tr>
<td><strong>Monday</strong></td>
<td>AM</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PM</td>
<td></td>
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<tr>
<td><strong>Tuesday</strong></td>
<td>AM</td>
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<td><strong>Wednesday</strong></td>
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</tr>
</tbody>
</table>

**Group #1 Operators** – Sally James, Dorothy Wiler, John Sams, Dan Wright, Edith South, Don Devon, Janet Likely

**Group #2 Operators** – Samantha Smith, Terry Combs, Jonathan Farly, Ernestine Boom, Jacob Jones

**Group #1 Mechanics** – Johnny Doright, Janet Johnson, Ty Combo

**Group #2 Mechanics** – Rafael Gomez, Tyrone Powerful, Cynthia Swalk
The daily schedule gives much more detail; rooms, instructors, and times. Both the daily and weekly schedules are important and should be sent out together. Again, the customer or integrator would be doing this most likely. If it’s a large project it’s good for the customer to have a shared folder on the computer set up for anyone to check this information as well as any other project information. These schedules are subject to change so they must constantly be kept updated. Request that they always put the revision date/time on the schedules so people don’t get confused.

**Daily Schedule**

<table>
<thead>
<tr>
<th>Date / Shift</th>
<th>Operators Supervisors</th>
<th>Mechanics</th>
<th>Electricians ET’s / Engineers</th>
<th>HVAC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Time</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6:45 – 8:45 AM</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>BREAK</strong></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>9:00 – 11:00 AM</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>LUNCH</strong></td>
<td></td>
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<td></td>
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<tr>
<td>11:45 – 1:45 PM</td>
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<td></td>
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<tr>
<td>2:00 – 3:00 PM</td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

**Prepared by:**

**Date:**

**Revision Date:**
Example – Daily Schedule

<table>
<thead>
<tr>
<th>Time</th>
<th>Operators Supervisors</th>
<th>Mechanics</th>
<th>Electricians ET’s / Engineers</th>
<th>HVAC</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:30 – 9:30 AM</td>
<td>Basic Equipment/System Overview – All Groups</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Classroom A</td>
<td></td>
<td></td>
<td>HVAC</td>
</tr>
<tr>
<td></td>
<td>Instructor: Jim Scott</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9:30 – 11:30 AM</td>
<td>Basic Operations</td>
<td></td>
<td>Electronic Systems Overview</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Classroom A</td>
<td></td>
<td>Classroom B</td>
<td>HVAC</td>
</tr>
<tr>
<td></td>
<td>Instructor: Sue</td>
<td></td>
<td>Instructor: Rafael</td>
<td>HVAC</td>
</tr>
<tr>
<td></td>
<td>Group #1</td>
<td></td>
<td>Group #1</td>
<td>HVAC</td>
</tr>
<tr>
<td>LUNCH</td>
<td>On-line</td>
<td>Programming</td>
<td>Technical Lab</td>
<td>HVAC</td>
</tr>
<tr>
<td>12:15 – 3:00 PM</td>
<td>Classroom A</td>
<td></td>
<td>Instructor: Rafael</td>
<td>HVAC</td>
</tr>
<tr>
<td></td>
<td>Instructor: Sue</td>
<td></td>
<td>Group #1</td>
<td>HVAC</td>
</tr>
</tbody>
</table>
Getting a Training Program/Process Started

If you are wondering how to actually get started with your training program, and process, the remainder of this section will give you all the tools you need to develop an easy to design and use format. It certainly isn’t the only process but it can be done by inexperienced staff that have been assigned this job as well as by professional training subject matter experts. In fact, this process has been used with an hourly staff to develop an entire program that lasted many, many years because of its simplicity and effectiveness.

If the question most on your mind is “I’d really like to utilize some of these techniques and tools, but where and how do I get started?” I suggest you start with the Business Need.

Business Alignment – Identify the Business Need

The most critical place to start is thinking in terms of what your business needs are and how training can satisfy those needs. In other words, don’t just do things because they are “nice to have.” Remember that training should be a value-added initiative. If you start out thinking of the business needs you are automatically building value, and your ability to sell it to upper management will be much easier.

Some of the questions you may be asking to start that needs assessment might be:

• Are we losing sales or productivity because of complaints that the equipment is too difficult to repair or maintain?
• Do we have too many quality rejects because our staff has poor skills?
• Are we trying to reduce the cost of quality rejects or rework?
• Have we just automated our process/equipment that requires a new skill set from our employees and our customers?
• Do our trainers/service techs get bad reviews after they have been out to do training associated with a new installation?
• Do we have repeat service calls (related to a repair issue)? Are our warrantee costs high?
• Are we looking for a way to stand out for our exceptional service? Gain a competitive advantage?
• Are we looking for enhanced customer relations, leading to more sales and/or higher productivity?
• Do we repeatedly get request for user-friendlier documentation?

These are just some questions that could stimulate your finding the REASON to enhance your training services – the reason that offers value to you and your customer. This will identify your business need.

The Best of What Is – Look at What You Already Have

Once you have identified your business need/s that can be satisfied by enhanced training services take a good look at what you already have. This is a step too often overlooked. There seems to be a theory that if you don’t have something you have to go looking outside, which usually translates into $$$$$$. Before you jump off in that direction take a good look at your internal resources. This is a good brainstorming activity. Rather than criticizing what you do wrong find out what you are doing right and what you want to do more of. This also creates a lot of
energy and synergy within a work team. This approach is called Appreciative Inquiry (AI). Using AI you take 3 steps – identify the best of “what is,” brainstorm what “could be” (knowing what you already have and want more of), and then identifying what “will be”. This is where you marry the creative new possibilities from what “could be” with realities to come up with a plan.

For example, when we were building a maintenance skills upgrade training program we asked for volunteer representatives (mechanics) from each shift to get together. We had no money, just a need to improve. The first thing we did was identify all we had. To our surprise we filled three flip chart pages with things we had that were not being used or were underutilized – all that would cost us very little if anything at all to use. By using the AI approach we came up with the idea of monthly JAM sessions (Just About Maintenance). We looked at the top 10 money losers (equipment problems) and started at the top of the list. We would get the SMEs (Subject Matter Experts) from each shift together and have open discussion about the issues and solutions.

An unexpected bonus was that many mechanics would bring in their own “cheat sheets,” which might have been troubleshooting guides, timing guide, diagram etc. The others were so excited by how useful they were that we ended up building a set of job aids from these self made “cheat sheets.” They didn’t cost us much – we just cleaned them up and laminated some. The added benefit was the pride that the mechanics took in knowing what they did was so highly valued. But the true value was the reduction of downtime from the new skills they developed by learning from one another. This is an example of using the “best” of what you already have to satisfy a business need for skills upgrade.

**Build a Plan**

Select your priorities and develop a realistic training plan. Make sure you include measurable goals – short and long term. These goals will set the stage for any further training initiatives you may attempt. You’re really learning together how to show the value of training!

**Example:** Let’s say you decide you want to develop training materials for your piece of equipment but aren’t sure how to start. The easiest way to do that is to do a flow chart (called a Job Task Analysis) of the steps of the equipment operations and under each step identify all the tasks for each. Here is what a Job Task Analysis might look like:

**Step 1:** Identify the flow of the equipment operation on your Job Task Analysis template.

![Job Task Analysis](image)

From this Job Task Analysis you’ll be able to build 4 - 5 additional tools (lesson plan, course overview, job breakdown checklist, performance check sheet and trouble shooting guide), as well as an entire training process.
**Step 2:** Identify all the tasks under each step. (Job Task Analysis)

- **Safety**
  - Lockout/Tag Out Procedures
  - Guarding
  - Using Safety Equipment

- **Operating Procedures**
  - Start-Up and Shut Down
  - Speed Adjustments
  - Threading Film

- **Maintenance**
  - Changeovers
  - Calibration
  - Belt Alignment

- **Troubleshooting Procedures**
  - Interpreting Panel View Screens
  - Replacing Components
  - Using Troubleshooting Tools

**Step 3:** Create the training material for critical tasks from the boxes above.
- Job Breakdowns
- Checklist
- Performance Check
- Troubleshooting Guide
- Course Overview
- Lesson Plan

This is the core for building an entire program. It is suggested that you start by selecting the most critical tasks and build upon those. Set timelines, even if it’s just creating a few training elements for 2 tasks a week. The troubleshooting guide may be developed for 1 or many tasks under each of the steps (boxes on the top row). Remember to always use the **business needs** as your guide in setting priorities as to what documents you prepare first.

**Training Evaluations** - 4 Levels

To prepare a comprehensive training program you would also include the following evaluations:
- Level 1 - Training Feedback Forms (p. 161)
- Level 2 - Verbal or written evaluations
  (This would depend on the literacy levels of the trainees.)
- Level 3 - Performance Checks (p. 156)
- Level 4 - Business Results Performance Checks (p. 186-187)
Job Task Analysis

Sample Job Task Analysis-Equipment Flow

Getting Your Program Started
Job Task Analysis – Equipment

Name of Equipment: _____________________________________
Developing a Training Program/Process

A formal TRAINING Program consists of:

- Job Task Analysis Flow Chart (of the training content) - p. 139-142
- Course Overviews (content) and Lesson Plans
- Job Aids (job breakdown, checklist, performance check, troubleshooting guide)
- Course Evaluations

Many customers may request a training overview to review. This overview basically consists of the topics to be covered in the class and a few other basic pieces of information. It does not list the detail of the content. This can be presented in outline or matrix form later. Here are examples of each.

Example #1

A similar outline should be created for each job classification to be trained.

Course Overview

<table>
<thead>
<tr>
<th>Course: Care and Maintenance of a Car</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Target Audience:</strong> Any car owner or driver</td>
</tr>
<tr>
<td><strong>Time:</strong> 2-4 hour sessions</td>
</tr>
<tr>
<td><strong>Size of Group:</strong> 5-10</td>
</tr>
<tr>
<td><strong>Prerequisite Skills:</strong></td>
</tr>
<tr>
<td>- Ability to drive</td>
</tr>
<tr>
<td>- Prefer ability to use small hand tools for the car (jack, wrench etc.)</td>
</tr>
</tbody>
</table>

**Topics to Be Covered:**
- Safety
- Basic Operations
- Maintenance
- General Upkeep
- Troubleshooting

**Evaluation Procedure:**
Each participant will be required to demonstrate their ability to perform basic tasks taught in class, with the completion of performance checks. A class evaluation will also be administered.

**Requirements:**
Prepared by: Date: Revision Date:

Above are the basics for a course overview. The main purpose of this document is to help you and your customer plan properly. You may also provide them with course objectives and greater content details during the planning stage or once you secure the training contract. Typically customers prefer the full outline in this course overview. Refer to the course outline on the lesson plan for a sample.
Example #2 - A typical mechanical course overview

You should have a course overview for each job classification. You could also do the training matrix format on p. 146. This would allow you to put all the course overview information on one page, with the exception of the prerequisite skills and the evaluation process.

Course Overview

<table>
<thead>
<tr>
<th>COURSE OVERVIEW (NAME OF EQUIPMENT)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Target Audience:</strong> Mechanic</td>
</tr>
<tr>
<td><strong>Size of Group:</strong> 4 – 6</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

**Topics to Be Covered:**
- System Overview
- Safety
- Parts and Tools
- Installation
- Operating Procedures
- HMI Navigation
- Start-up/Shutdown Procedures
- Emergency Shut Down Procedures
- Troubleshooting
- Repair & Maintenance
- Preventative Maintenance

**Evaluation Procedure:** Performance Checks will be completed as each participant demonstrates his/her ability to complete the required tasks. Overall class/instructor feedback sheets will also be administered.

**Requirements:**
- Dedicated classroom (2 hrs.)
- Powered equipment on line (6 hrs.)
- Case sealer manuals (1 per trainee)
- Pencils

Prepared by: ________________________  Date: ________________________  Revision Date: ________________________
# Template - Course Overview

An overview should be created for each job classification to be trained.

## Course Overview

<table>
<thead>
<tr>
<th>COURSE OVERVIEW (NAME OF EQUIPMENT)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Target Audience:</strong></td>
</tr>
<tr>
<td><strong>Size of Group:</strong></td>
</tr>
</tbody>
</table>

## Topics to Be Covered:

## Evaluation Procedure:

## Requirements:

<table>
<thead>
<tr>
<th>Prepared by:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Revision Date:</td>
</tr>
</tbody>
</table>
Template – Training Content Matrix

Check each box that reflects the training content for each job classification.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Operator</th>
<th>Mechanic</th>
<th>Electrician</th>
<th>Electronic Technician</th>
<th>Stationary Engineer</th>
<th>Supervision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systems Overview</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tools, Parts &amp; Equipment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Installation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Start-Up</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Procedures</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shut Down/Emergency Shut Down</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Troubleshooting</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repair &amp; Maintenance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preventative Maintenance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Changeover Procedures</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lubrication</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electronic Calibration &amp; Testing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electronic Troubleshooting</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLC Architecture &amp; Strategy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLC Component Troubleshooting</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basic Robotic Theory</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Training Time (Class Size)    |          |          |             |                       |                     |             |
| Operators                     | 4 hrs. (6-8) |          |             | E.T.’s                | 2 days (3-5)       |             |
| Mechanics                     | 8 hrs. (3-5) |          |             | Stationery Engineers  | 4 hrs. (6-8)       |             |
| Electricians                  | 2 days (3-5) |          |             | Supervision           | 4 hrs. (1-2 per)   |             |

You could list prerequisite skills and evaluation procedures here.

**Prerequisite Skills:**
- Operators
- Mechanics
- Electricians

**Evaluation Procedures:**
Each trainee will complete performance checks where they must demonstrate the critical operating tasks learned in class. A course evaluation will also be administered.
Lesson Plan

A LESSON PLAN consists of:
• Session Objectives (Enabling and Terminal)
• Targeted Audience
• Materials Needed
• Course Outline
• Time Allotment for Each Section

Session Objectives are the tangible end results of the training. They should be specific, realistic and measurable.

Objectives Warning:
Avoid using words like understand, know, learn. Those are vague and hard to measure. You may have seen them used. Here are some examples of BAD objectives:
• Understand how the equipment works.
• Learn about the troubleshooting procedures.
• Know the safety features.
You can’t measure these because the words are too vague. Objectives should start with a clearer word, which indicates what the trainee will be able to demonstrate or discuss. It should be action orientated and start with a verb. The only way you know learning has occurred is if the trainee can demonstrate the knowledge. There are two kinds of objectives – enabling (what you do as an instructor) and terminal (what the trainee should be able to do when you have completed the training.)

Some samples of measurable objectives are:
• Explain and demonstrate all the safety procedures for the equipment. (Enabling Objective)
• Demonstrate how to conduct a safety inspection of the equipment. (Enabling Objective)
• Trainee will independently be able to start up and shut down the equipment. (Terminal Objective)
• Trainee will be able to troubleshoot the equipment independently using the online panel view initially and then the troubleshooting computer. (Terminal Objective)

The key is that you actually can measure if the trainee can or cannot complete this. Sometimes the objectives also list time and standard. For example, the mechanic can calibrate the equipment in less than 30 minutes to a tolerance of…. This is even more specific and measurable.

Materials needed could include:
• _____ Training Manuals
• _____ Job Aids
• _____ Flip Chart
• _____ Data Projector
• _____ Masking Tape
• _____ Markers
• _____ Checklist
• _____ Simulator
• _____ Equipment
• _____ Tools (list all of them)
• _____ Performance Check Sheets
• _____ Course Evaluation Sheets
Lesson Plan Worksheet

OPERATING AND MAINTAINING A CAR

<table>
<thead>
<tr>
<th>Materials Needed:</th>
<th>Time Allotment:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car</td>
<td>2 – 4 hour sessions</td>
</tr>
<tr>
<td>Spare tire and tools</td>
<td></td>
</tr>
<tr>
<td>Car Manual</td>
<td></td>
</tr>
<tr>
<td>Blades</td>
<td></td>
</tr>
<tr>
<td>Cleaning Materials</td>
<td></td>
</tr>
</tbody>
</table>

Enabling Objectives:
- Explain and demonstrate all the safety features of the car
- Describe and show the basic operating procedures
- Review and demonstrate all the maintenance and general upkeep tasks of owning and/or using a car
- Discuss all the troubleshooting procedures and show how the owner’s manual can help you in the process

Terminal Objectives:
- Each trainee will be able to demonstrate all the critical operating procedures of the car
- Each trainee will be able to react to a problem that might occur and identify the proper solution
- Each trainee will be able to independently change a flat tire using the tools and manual provided

SESSION 1 - Course Outline

I. Session Introduction – Session (10 minutes)
   a. Session overview and objectives
   b. Introductions
   c. Timing of sessions, breaks
   d. Expectations

II. Safety – (2.5 Hours)
   a. Fastening seat belts
   b. Changing flat tires
   c. Using ABS properly
   d. Setting the Theft Deterrent System
   e. Installing Child Restraints

III. Basic Operations – (30 minutes)
   a. Starting, Stopping
   b. Setting cruise control
   c. Using the air conditioning and heater
   d. Using, replacing and adjusting wipers
   e. Setting the lights

IV. Maintenance – (40 Minutes)
   a. Following the maintenance schedule
   b. Changing the oil
   c. Rotating the tires
   d. Inflating the tires
   e. Checking the fluids

V. Summary, Questions, Feedback – (10 minutes)

NOTE: Notice how the topics and the tasks are taken directly from the training Job Task Analysis flow chart.
Lesson Plan Worksheet Continued

<table>
<thead>
<tr>
<th>SESSION 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I. General Upkeep (1 Hour)</strong></td>
</tr>
<tr>
<td>a. Washing</td>
</tr>
<tr>
<td>b. Waxing</td>
</tr>
<tr>
<td>c. Cleaning the Interior</td>
</tr>
<tr>
<td>d. Replacing Blades</td>
</tr>
<tr>
<td>e. Replacing Bulbs</td>
</tr>
<tr>
<td><strong>II. Troubleshooting (2.5 Hours)</strong></td>
</tr>
<tr>
<td>a. Overheating</td>
</tr>
<tr>
<td>b. Engine Stalling</td>
</tr>
<tr>
<td>c. Loss of Power</td>
</tr>
<tr>
<td>d. Engine Noises</td>
</tr>
<tr>
<td>e. Vehicle Pulling to Side</td>
</tr>
<tr>
<td><strong>III. Performance Checks – (15 minutes)</strong></td>
</tr>
<tr>
<td><strong>IV. Questions, feedback and course evaluation – (15 minutes)</strong></td>
</tr>
<tr>
<td><strong>V. Follow Up</strong></td>
</tr>
<tr>
<td>a) Internal Resources</td>
</tr>
<tr>
<td>b) External Resources</td>
</tr>
</tbody>
</table>

Prepared by:  
Date:  
Revision Date:  

You should be noticing how easy all these tools are to create when you start with the training Job Task Analysis flow chart. Just take all the information from there and add a few more pieces of information for each new training document.

**HINT**

It’s good to add “break” and “meal” times on your Lesson Plan under the course outline section.
Example - Lesson Plan

A lesson plan can be in outline form or greater detail. It’s the trainer’s tool and guide and should support the trainer’s/company’s needs.

**CASE PACKER SESSION – OPERATORS**

<table>
<thead>
<tr>
<th>Materials Needed:</th>
<th>Time Allotment:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training Manuals, Job Aid - Troubleshooting Guide, Flip chart/markers, Feedback Sheets</td>
<td>4 hours</td>
</tr>
</tbody>
</table>

**Enabling Objectives:**
- Present and demonstrate an overview of the equipment.
- Demonstrate startup, shutdown and operating procedures.
- Review the use of the troubleshooting guide and apply it online.
- Show all the safety stops and guards and how to use them.

**Terminal Objectives:**
- Have each trainee demonstrate their ability to independently start-up, shutdown and operate the equipment.
- Set up situations for each trainee to utilize the troubleshooting guide and resolve equipment problems. Evaluate their ability to troubleshoot independently.

**Course Outline**

I. Session Introduction – 30 minutes (Overhead Projector)
   a. Self and class introduction
   b. Class objectives
   c. Overview of system
   d. Safety

II. Operating Procedures – 30 minutes (Training Manual, Job Aid)
   a. Startup
   b. Operating
   c. Shut down
   d. Emergency Shutdown
   e. Troubleshooting

III. Online Demonstration and Troubleshooting – 2 hours (Job Aid)

IV. Trainee Performance Checks – 45 minutes (Performance Check Worksheets)

V. Summary, Questions, Feedback – 15 minutes (Feedback Sheets)

VI. Follow Up
   a) Internal Resources
   b) External Resources

Prepared by: ___________________________ Date: ___________________________

Revision Date: ___________________________

Obviously, this lesson flow is very simplistic. Each trainee or company will identify the depth of the lesson plan that meets their needs. Often it is tied to the training manual and reference pages would be utilized. The most important element is the objectives. They will guide the flow and will be the key in measuring whether you accomplished the training objectives or if additional training is required. The performance checks and the feedback sheets will also help you measure your performance as an instructor.
## Installation and On-Site Training Basics

### Materials Needed:

<table>
<thead>
<tr>
<th>Time:</th>
</tr>
</thead>
</table>

### Objectives:

#### Enabling:

#### Terminal:

### Course Outline

1. **Introduction (add time for each row)**

2. **II.**

3. **III.**

4. **IV.**

5. **V.**

6. **VI. Follow Up**
   - a) Internal Resources
   - b) External Resources

---

Prepared by:  
Date:  
Revision Date:
Job Performance Aids (JPAs)

Job Performance Aids (JPAs) can be one of the most effective tools to assist people in learning and maintaining equipment. They really are anything that people use as an aid to learning – JPAs can be checklists, a process flow diagram, a simulator, a job breakdown sheet, a troubleshooting guide, Standard Operating Procedures (SOP), One Point Lesson (OPL), etc. Some examples of JPAs that most of you have seen and used are; quick guides often referred to as One Point Lessons (one page instruction) for using your cordless or cell phones; the assembly diagram that came when you bought your computer showing, through the use of color coding and pictures, how to connect your computer to your printer and monitor; the airline information sheet that is reviewed before takeoff; or the simple “cheat sheets” you made to remember key/critical steps for some tasks.

What makes JPAs so valuable is that they are quick and easy to use and usually small. They can be carried conveniently in your pocket or in planners or attached to a piece of equipment. Although manuals are valuable because of the needed details they contain, people don’t usually walk around with a manual in their hand, at least not for very long. Manuals serve a needed purpose, but too often become dust collectors or get misplaced. When learning a new piece of equipment you may start with a manual, but once your confidence increases you can move on to JPAs.

Benefits and Application

<table>
<thead>
<tr>
<th>MANUALS</th>
<th>JOB PERFORMANCE AIDS*</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Contain needed details, especially important during initial training and installation</td>
<td>• Summarize a process in bullet or matrix format</td>
</tr>
<tr>
<td>• Used as an ongoing resource and reference</td>
<td>• Particularly good for critical operating procedures (COPs)</td>
</tr>
<tr>
<td>• Used to verify processes</td>
<td>• Easy and quick to use</td>
</tr>
<tr>
<td>• May be used by engineers and/or designers as a base to develop new prototypes from</td>
<td>• Small and handy (user-friendly)</td>
</tr>
<tr>
<td>• Important for liability purposes</td>
<td>• Can be very inexpensive to make</td>
</tr>
<tr>
<td></td>
<td>• Can be designed internally, quickly</td>
</tr>
<tr>
<td></td>
<td>• Can be updated easily and frequently</td>
</tr>
<tr>
<td></td>
<td>• Can be used to help reduce cost and/or waste due to a recurring error</td>
</tr>
</tbody>
</table>

*JPAs do NOT replace the need for manuals, especially for liability purposes. They are a good supplement! Your legal department should help develop a statement to be added to all job aids noting where the full details can be found.

The next few pages will give you samples of some of the most basic job performance aids (JPAs) that you can make internally, at very little cost. These can be used to design an entire training program or just as simple aids to help reduce cost and waste created by your top problem areas.
## Template – Job Breakdown

A **job breakdown** is a detailed list of the steps it takes to complete a task. It includes not only the steps but the “helpful hints” that make it understandable to the new trainee.

**Task:** ______________________________________________________

<table>
<thead>
<tr>
<th>STEPS</th>
<th>HELPFUL HINTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Here’s an easy way to think about Steps and Hints:

**Steps:** Tell you WHAT to do.

**Hints:** Tell you HOW to do it.

For the trainee the “hints” can make a big difference in learning. With pieces of equipment, the hints may be referring to a safety warning, special knob or key, a color that goes on, a sound you make, a message you get on a screen, or mentioning a time delay. When you are doing a **job breakdown** ask yourself, or anyone you’re working with, about the **little details** and be constantly thinking “if I were new to this what would help me learn?” Ask also “if I do this step what can I expect to happen?” All those are the things to include in the “hints” portion.

This is a great exercise to complete with trainees – developing their own job breakdowns- once the trainees have some experience. By talking through this you will reinforce their learning, and you will also be developing a practical tool for them to use in the future. This format effectively meets the adult learners need to learn in “small chunks.”

### HINT

The most effective JPA’s include pictures of each step. When using pictures make sure you label them and add arrows so trainees can see what you are referring to. Put pictures on the left side since the brain processes it faster there.
## Example – Job Breakdown: How to Change a Flat Tire
(Ideally you’d have pictures on the left hand side by each step)

<table>
<thead>
<tr>
<th>STEPS</th>
<th>HELPFUL HINTS</th>
</tr>
</thead>
</table>
| Slow down and pull car off the road | • Make sure it is all the way off and on a flat surface.  
• Turn the engine off, put transmission in “P”, and the emergency break and flashers on.  
• Have everyone get out and away from traffic. |
| Park the car | • Put blocks under the tires to prevent rolling when it is jacked up.  
• You can use any piece of wood or rocks as blocks.  
• Blocks should be placed in front of the front tires and behind the back tires. |
| Get the spare tire, jack and car wrench out of the trunk | • Check spare to make sure there is air in it.  
• If tire is low get air at the nearest station once you drive off on the spare.  
• Check to see if the owner’s manual is in the car. |
| Loosen the wheel nuts before raising the car | • Do this before jacking up the car  
• Turn the wrench counterclockwise to loosen nuts.  
• Loosen opposite wheel nuts until they are all loosened. Don’t take them out yet! (Hint: righty tights, lefty loosen)  
• To get maximum leverage grab the wrench near the end of the handle and pull up on the handle. |
| Position the jack under the car at the jack joints | • Make sure it is on a level and solid surface before jacking the car up.  
• Check owner’s manual for proper placement of the jack.  
• Make sure no one is in the car. |
| Jack car up | • Insert the jack handle into the jack and turn clockwise. As it begins to lift check again that it is properly positioned.  
• NEVER get under the car supported by a jack.  
• Make sure it is high enough so the inflated spare can be installed. |
| Remove the wheel nuts and tire | • Once you take nuts off put in the hubcap or another safe place.  
• Lift tire off and put aside.  
• Use proper lifting techniques. |
| Put spare tire on | • Wipe off any corrosion on the mounting surface first so the nuts won’t loosen up while driving.  
• Align the wheel holes with the bolts, wiggle it on and press it back. |
| Put the wheel nuts back on | • Tighten all the nuts as much as you can by hand. |
| Lower the car completely then tighten the nuts | • Turn the wrench counterclockwise to lower the car, and then tighten the nuts with the wheel wrench.  
• Tighten each nut a little at a time doing opposite ones until they are all tight. |
| Put bad tire and tools back into trunk | • Make sure you remove the blocks from under the tires before you drive away.  
• Put tire and tools away securely. |
Now that you have a job breakdown prepared you may want to turn it into a quick checklist as a reminder to the learner who no longer needs the hints portion of the job breakdown. That’s easy; just use what is on the “steps” side of the job breakdown.

### Example Checklist: How to Change a Flat Tire

<table>
<thead>
<tr>
<th>Task</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pull car off the road</td>
<td></td>
</tr>
<tr>
<td>Park the car</td>
<td></td>
</tr>
<tr>
<td>Get the spare tire, wrench and jack out of the trunk</td>
<td></td>
</tr>
<tr>
<td>Loosen the wheel nuts before raising the car</td>
<td></td>
</tr>
<tr>
<td>Position the jack under the car</td>
<td></td>
</tr>
<tr>
<td>Jack car up</td>
<td></td>
</tr>
<tr>
<td>Remove wheel nuts and tire</td>
<td></td>
</tr>
<tr>
<td>Put spare tire on</td>
<td></td>
</tr>
<tr>
<td>Put the wheel nuts back on</td>
<td></td>
</tr>
<tr>
<td>Lower the car completely and tighten the nuts</td>
<td></td>
</tr>
<tr>
<td>Put bad tire and tools back into trunk securely</td>
<td></td>
</tr>
</tbody>
</table>

Prepared by: 
Date: 
Revision Date:
**Template – Performance Checks (PCs)**

**Performance Checks (PCs)** are a trainer’s tool used to determine if learning occurred, and, if not, what additional training is needed. We use this instead of a “test”. It is an evaluation of the trainee’s ability but it’s taken from a more positive position. A test usually is a threatening word that creates anxiety. A Performance Check (PC) is an aid to make sure learning has occurred or to help decide what additional assistance or training is needed from the trainer. In keeping with the procedure we started, we will use the same steps, from the job breakdown, in an easy-to-use format. *Note: It’s a good idea to number each PC for ease in tracking.

**Performance Check 2.1**

Name of Trainee _______________________________________

Date ________________________________________________

<table>
<thead>
<tr>
<th>PERFORMANCE CHECK TASK</th>
<th>Level of Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steps</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Prepared by: ______________________ Date: ____________

Revision Date:

1 = Unable to perform this step
2 = Needs additional coaching/training on this step
3 = Can perform this step independently

**Comments:**

**Signatures: (Discuss the need for signatures with management)**

The following signatures indicate that this task has been performed accurately and independently and no additional training is required.

Trainer ___________________________ Date ____________

Trainee ___________________________ Date ____________

Supervisor ________________________ Date ____________
Example – Performance Check 2.1

Name of Trainee ______________________________________________
Date _______________________________________________________________________________________

<table>
<thead>
<tr>
<th>PERFORMANCE CHECK: Changing a Flat Tire</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Steps</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Pull car off the road</td>
</tr>
<tr>
<td>Park the car</td>
</tr>
<tr>
<td>Get the spare tire, wrench and jack out of the trunk</td>
</tr>
<tr>
<td>Loosen the wheel nuts before raising the car</td>
</tr>
<tr>
<td>Jack car up</td>
</tr>
<tr>
<td>Remove wheel nuts and tire</td>
</tr>
<tr>
<td>Put spare tire on</td>
</tr>
<tr>
<td>Lower the car completely and tighten the nuts</td>
</tr>
<tr>
<td>Put bad tire and tools back into trunk securely</td>
</tr>
</tbody>
</table>

Prepared by: __________________________ Date: __________________

1 = Unable to perform this step
2 = Needs additional coaching/training on this step
3 = Can perform this step independently

Comments:

Signatures:
The following signatures indicate that this task has been performed accurately and independently and no additional training is required.

Trainer_____________________________________
Date ______________

Trainee_____________________________________
Date ______________

Supervisor___________________________________
Date ______________
Troubleshooting guides are very important in both the initial learning and the ongoing operation and maintenance of your new equipment. Training is only half done without the troubleshooting portion, because, as we all know, things never seem to work exactly as the directions say when you are on your own. Sometimes the troubleshooting guide is the only tool you have to help when things go wrong. This may be in the form of an expert system, a troubleshooting screen on your computer, Human Machine Interface (HMI), or a handheld format. We’ll demonstrate only the handheld format.

The easiest way to build a troubleshooting guide is in the three stage format – what is the problem (that’s what you’re experiencing), what caused it and how do you fix it. Here’s a template. The next page has a sample, again using the flat tire example.

**Troubleshooting Guide:** (List what equipment or task its for)

<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>POSSIBLE CAUSES</th>
<th>POSSIBLE SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Prepared by: ___________________________  Date: ________________

Revision Date: ________________________
## Example – Troubleshooting Guide: Changing a Flat Tire

<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>POSSIBLE CAUSES</th>
<th>POSSIBLE SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car is rolling</td>
<td>• No blocks under tires</td>
<td>• Find blocks and place in front of front tires and behind back tires.</td>
</tr>
<tr>
<td></td>
<td>• Parked on uneven surface</td>
<td>• Move car to level surface</td>
</tr>
<tr>
<td></td>
<td>• Emergency brake not on</td>
<td>• Put emergency brake on</td>
</tr>
<tr>
<td>Wheel Nuts won’t come loose</td>
<td>• Too tight for you</td>
<td>• Grab the wrench at the end to gain as much leverage as possible</td>
</tr>
<tr>
<td></td>
<td>• Your turning the wrench in the wrong direction</td>
<td>• Turn in opposite direction</td>
</tr>
<tr>
<td>Spare tire not secure</td>
<td>• Corrosion on the mounting surface</td>
<td>• Wipe off any corrosion from the mounting surface for good metal-to-metal contact.</td>
</tr>
<tr>
<td></td>
<td>• Nuts not tight enough</td>
<td>• Tighten nuts a little at a time and in an opposite sequence rather than all at once in a row.</td>
</tr>
</tbody>
</table>

You can see this is a simple to use format. It’s best to start with the problem because that’s usually where you are when you need this guide. By building your own troubleshooting guides, you have the flexibility to continually update them. It’s also a great learning exercise to ask your trainees to do, once they have been doing the task/job a short time. They can improve and/or update them.

**Recommendation:**

Using bullets for each cause and solution makes it easier to use. Make sure the solution is aligned directly across from the cause, again for ease of use.
Feedback

Feedback and evaluation are the “food of champions.” Without this your training efforts are merely ‘activities’. You’ve already agreed to specific training goals, now you need to see if you’ve reached them. There are actually several types of feedback and evaluation tools during training:

- Instructors/Course Evaluation (Level 1)
- Written Evaluation (Level 2)
- Individual Trainee’s Performance Checks (Level 3)
- Targeted Goals Evaluation (Level 4)
(Refer to p. 16 Levels of Evaluation)

Targeted Goals
Since you identified these upfront, they should be pretty clear to measure. You either achieved them, you didn’t achieve them or most likely you attained the activities but perhaps not the more time consuming measurement of the results. For example:

Goal

- Complete the operator, mechanic and electrician training by June 25th so they can independently operate, maintain and repair the equipment.

You may have done the training (activity) BUT are they now independently able to operate and troubleshoot the equipment (results)? To determine this you would have had to complete individual performance checks.

Performance Checks (Level 3 Evaluation)
These are the individual assessments of each trainee. These will take time and most likely require internal support to administer. The sample of a performance check is on previous pages p.156-157. You should decide ahead of time which tasks you’ll perform performance checks on, have a separate sheet for each and have the performance check performed by yourself (the trainer) and perhaps the internal trainer and finally the supervisor.

HINT

People need time and practice to achieve a skill level where they are truly independent. The PCs will show you they can complete a task at that time BUT they should be repeated till it’s natural and consistent. Spaced repetition is KEY to learning. Since you can’t be there long, having internal trainers can make a significant difference for long term skill acquisition.

Instructors/Course Evaluation (Level 1 Evaluation):
Once you’ve completed your training, you should have the participants give you feedback. This is a valuable tool for you, the instructor, as well as for your customer.
**Template – Training Evaluation Form**

Last but not least the trainer/training should be evaluated by the trainees. Here is a sample evaluation. (You may want to pre-fill the top part.)

<table>
<thead>
<tr>
<th>Class:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trainer:</td>
<td>Time:</td>
</tr>
</tbody>
</table>

After each class we would like to get your feedback. This helps us to know what worked well for you and what we could do differently to improve future sessions. Please be honest with your answers. **Thank you for your time!** No names are required on these sheets.

Thinking back on this training experience, what made it **useful/helpful** for you? What helped you learn?

On the other side, what about this learning experience was **not** helpful? What would you do differently?

What **additional training** or **support** do you need to be able to operate, maintain or repair this equipment by your self?

Please rate the following on a scale of 1 to 5 (5 being the best)

<table>
<thead>
<tr>
<th>The training objectives were clear</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>The trainer was prepared</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>The materials and classroom were ready for class</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>The materials were clear and useful</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>The instructor was patient and helpful</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>The trainer listened to participants openly</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>The trainer answered questions asked</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>The trainer allowed time for each person to “try-out” the task being taught</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>The trainer encouraged questions/participation</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>The trainer was respectful of participants</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>You left the class feeling you could now do the task on your own</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>If you need more help you know where to go for it</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Additional comments – Please add on the back of this paper. Thanks!
## Template – Training Sign-In Sheet

<table>
<thead>
<tr>
<th>Trainer:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company:</td>
<td>Time:</td>
</tr>
<tr>
<td>Equipment:</td>
<td></td>
</tr>
</tbody>
</table>

Participants: (Circle) Operators Mechanics Electricians Supervisors Other:

<table>
<thead>
<tr>
<th>Name</th>
<th>Job Title</th>
<th>Shift</th>
<th>Training Completed</th>
<th>Training NOT Completed</th>
<th>Training Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Training Follow-Up Recommendations:**
Additional Job Performance Aids (JPAs) – The SOP and OPL

Two additional JOB PERFORMANCE AIDS to add to your training tool box are:

- The Standard Operating Procedure (SOP)
- The One Point Lesson (OPL)

**Standard Operating Procedure (SOP)**

An SOP is typically used to:

- Describe a complete task (similar to the job breakdown)
- Provides procedural steps (this is especially true in the pharmaceutical industry)
- Can provide reference or explanatory information
- Be applied as a “point of use” application

**Template – SOP**

<table>
<thead>
<tr>
<th>Title</th>
<th>What the SOP explains, or outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purpose</td>
<td>Why is it being done?</td>
</tr>
<tr>
<td>When</td>
<td>When should this be done?</td>
</tr>
<tr>
<td>Materials</td>
<td>This job aid and/or other materials needed</td>
</tr>
</tbody>
</table>

Written by: Date:

<table>
<thead>
<tr>
<th>Actions:</th>
<th>Steps / Notes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
</tr>
</tbody>
</table>

4. Check your work | Result will be |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>This task is done as expected when …</td>
</tr>
</tbody>
</table>

**NOTE:** the SOP format is very similar to the job breakdown already described. The “check your work” portion of the SOP is a nice performance check reminder that reinforces the 4 Step Training Process.

Information on SOPs and OPL were provided by Darin Downs. To contact him directly email him at downsd@fuse.net
Lesson Objective  
This lesson outlines how to properly thread the film through the machine.

Machine Status  
Idle.

Changing Film  
The only instances that require re-threading are film breakage or damage, maintenance to the machine, or changing the size of the film when splicing is impossible. All other film changes can be accomplished by splicing the new film to the old and running the old film out.

Threading the Film  

<table>
<thead>
<tr>
<th>Step 1. Stop machine</th>
<th>1. Press the “Production” button to stop production.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.2. Shut off steam by pressing “Heating” to disable.</td>
</tr>
<tr>
<td></td>
<td>1.3. After 10 minutes to allow the heat tunnel to cool down, stop conveyors by pressing “Conveyors” to disable.</td>
</tr>
<tr>
<td>Step 2. Remove film</td>
<td><strong>CAUTION!</strong> Do not touch the static bars! Static shock can occur.</td>
</tr>
<tr>
<td></td>
<td>Remove the film from the machine:</td>
</tr>
<tr>
<td></td>
<td>2.1. Cut the film at the splice table to release it from the reel.</td>
</tr>
<tr>
<td></td>
<td>2.2. Remove both reels and pack up remaining film properly.</td>
</tr>
<tr>
<td></td>
<td>2.3. Cut the film inside the accumulator for ease of removal.</td>
</tr>
<tr>
<td></td>
<td>2.4. Remove film from accumulator and film bend unit.</td>
</tr>
<tr>
<td></td>
<td>2.5. Cut film at the entry to the applicator cabinet.</td>
</tr>
<tr>
<td></td>
<td>2.6. Cut the film also right above the mandrel spear. Remove the film from the upper applicator rollers.</td>
</tr>
<tr>
<td></td>
<td>2.7. Pull film up from the mandrel, easing it under all tension wheels.</td>
</tr>
<tr>
<td></td>
<td>2.8. Make sure no loose film remains in the machine.</td>
</tr>
<tr>
<td>Step 3. Perform changeover</td>
<td>If you are performing a size changeover, set up the machine before threading new film.</td>
</tr>
<tr>
<td>Step 4. Thread film</td>
<td>4.1. Insert the new film reel into the De-Reel unit. Make sure the film is inserted the correct way.</td>
</tr>
<tr>
<td></td>
<td>4.2. Thread the film in the De-Reel according to the threading diagram. Push and hold the JOG pushbutton to wind the film forward. To reverse the film, press and hold both JOG and REVERSE.</td>
</tr>
</tbody>
</table>

NOTES  
Information on SOPs and OPL were provided by Darin Downs. To contact him directly email him at downsd@fuse.net
4.3. Thread the film in the Accumulator according to the diagram. A JOG pushbutton is located inside the accumulator for easy threading. A helpful hint for threading accumulator rollers:
1. Upper outer
2. Lower inner
3. Upper inner
4. Lower outer
5. Repeat!

4.4. Thread the film bend according to the posted diagram. Have an assistant jog the film forward while threading the rest of the Intersleeve.

4.5. Thread the film over the 90 degree turn to the applicator.

4.6. Thread the film through the upper units of the applicator. Use the diagram posted in the machine.

4.7. Open the film and slide it down over the mandrel spear. Insert the film crease under the two pressure rollers (one in front, one in rear of mandrel). These rollers compress the crease on either side to create a more circular sleeve.

4.8. Carefully slide the film under the transport rollers and into the rotary knife area.

4.9. Double Check! Straighten the film on all rollers in the applicator. Make a correct loop at the film buffer.

**Step 5.** Close guard doors

5.1. Check around the machine for foreign objects and loose film.
5.2. Close all guard doors.

**NOTES**

Information on SOPs and OPL were provided by Darin Downs. To contact him directly email him at downsd@fuse.net
Step 6. Feed film

At the touchscreen control panel, enable Manual Mode by pressing “Manual.” Once in Manual Mode, the applicator you have threaded can be controlled using the Applicator manual controls.

6.1. Jog the film through the applicator by pressing the “jog” button. This will tighten the film in the applicator.

6.2. Perform a Reference Cycle by pressing “one sleeve” and “reference” at the same time.

6.3. Cut a series of sleeves using the “multi-sleeve” button – press once and 10 sleeves will be produced.

During this testing, observe the machine – note any problems with film tracking.

Step 7. Repeat

Repeat Steps 2-6 for the other De-Reel and Applicator.

Check your work

Once the film is properly tensioned over the rollers in both applicators and no problems have been observed, you may start production.

Information on SOPs and OPL were provided by Darin Downs. To contact him directly email him at downsd@fuse.net
Standard Operating Procedure

1. PURPOSE
   1.1 The purpose of this SOP is to provide instructions for changeover of the Super-Duper Monster Maker Machine.

2. GENERAL INFORMATION
   2.1 Scope
      2.1.1 This SOP covers only the Super Duper Monster Maker Machine used in the Achieving Lean Changeover workshop.
   2.2 Safety
      2.2.1 All normal safety precautions are to be observed.
   2.3 Responsibility
      2.3.1 This changeover will normally be performed by operators.

3. MATERIALS
   3.1 Materials required are the upper and lower mold halves and bases for the succeeding monster. These should be assembled and staged beside the machine prior to finishing the previous monster production run.
      3.1.1 Assure that the mold assembly is staged with the side marked “TOP” up and “FRONT” toward the operator.

4. TOOLS
   4.1 No tools required

5. DEFINITIONS
   5.1 See picture for machine terminology.
6. **CHANGEOVER PROCEDURE**

6.1 Move the operating lever to the left, against the vertical post.

6.2 Unplug control wires (2 pair) located at the left front of the machine.

6.3 Remove the upper mold assembly of the current product.

   6.3.1 With the machine in the open position, reach in through the front of the machine with one hand to support the upper mold half.

   6.3.2 Unscrew the hand knob on the top of the machine. Leave the hand knob in place.

   6.3.3 Remove the upper assembly through the front of the machine.

   6.3.4 Set the assembly mold side up to the side of the machine.

6.4 Remove the lower mold assembly

   6.4.1 Open the two toggle clamps holding the lower assembly.

   6.4.2 Lift the lower mold assembly up and slide out the front of the machine.

   6.4.3 Set the lower assembly, mold side up, next to the upper assembly.

6.5 Mount the upper and lower mold assemblies for the new product

   6.5.1 With the two halves of the mold assembled, assure that the base marked “TOP” is up and the arrow marked “FRONT” is toward the operator.

   6.5.2 Slide the assembled upper and lower assemblies into the machine from the front.

   6.5.3 Assure that the lower mold assembly is seated flat against the bolster.

6.6 Close the two toggle clamps holding the lower mold assembly in place. Be sure that they snap into the locked position.

6.7 Fasten the upper mold half

   6.7.1 With the upper mold assembly assembled to the lower mold half, push the upper bolster down until it is flush with the upper mold plate.

   6.7.2 Tighten the hand knob. Note that the hand knob has lateral play in all directions. This is intentional to allow alignment of the upper mold half with the lower mold half.

   6.7.3 Release the upper bolster and allow it to rise to its fully open position.
6.8 Connect the control cables red to red and black to black.
6.9 Move the operating lever over the handknob
6.10 The machine is now ready to make monsters.

7. DOCUMENTATION
7.1 None

8. ATTACHMENTS
8.1 None

9. REFERENCES
9.1 None

10. CHECKLIST
THIS CHECKLIST PROVIDES AN OVERVIEW OF MAJOR STEPS IN THE CHANGEOVER OF THE SUPER-DUPER MONSTER MAKER MACHINE. CHECKLIST ITEM AND PAGE NUMBERS REFER TO THE MAIN BODY OF THE SOP.

6. CHANGEOVER PROCEDURE 2
6.1 MOVE THE OPERATING LEVER TO THE LEFT, AGAINST THE VERTICAL POST. ................................................................. 2
6.2 UNPLUG CONTROL WIRES (2 PAIR) LOCATED AT THE LEFT FRONT OF THE MACHINE............................................... 2
6.3 REMOVE THE UPPER MOLD ASSEMBLY OF THE CURRENT PRODUCT. ................................................................. 2
6.4 REMOVE THE LOWER MOLD ASSEMBLY .................................... 2
6.5 MOUNT THE UPPER AND LOWER MOLD ASSEMBLIES FOR THE NEW PRODUCT .................................................... 3
6.6 CLOSE THE TWO TOGGLE CLAMPS HOLDING THE LOWER MOLD ASSEMBLY IN PLACE. BE SURE THAT THEY SNAP INTO THE LOCKED POSITION. ..................................................... 3
6.7 FASTEN THE UPPER MOLD HALF.......................................... 3
6.8 CONNECT THE CONTROL CABLES RED TO RED AND BLACK TO BLACK. ............................................................. 3
6.9 MOVE THE OPERATING LEVER OVER THE HANDKNOB .......... 3
6.10 THE MACHINE IS NOW READY TO MAKE MONSTERS............ 3
One Point Lesson (OPL)

A One Point Lesson is one of the least complex JPAs. It typically is used:

- As a training aid designed to cover ONE subject or task on ONE page of paper.
- Within a team environment – it’s easy to use, visual and easy to share.
- To demonstrate single point.
- To create a job aid quickly to meet a specific need.

NOTE: On the OPL template the author of the OPL and the date prepared are requested as well as the approval name/date. These are important to know when you may be updating them.

Next few pages include:
- Basic OPL template
- 3 OPL samples
The **Orbi-Trak® Spindles** require complete removal and replacement when changing between carton sizes. The spindles are equipped with two or three vacuum cups. Check the calibration sheet for the spindles that should be used.

1. Remove the Spindle Assembly from the Vacuum Spindle Retainer by pulling straight out on the hex shaft.

2. Insert the new Spindle Assembly by pushing straight into the retainer. Make sure the red timing mark aligns with the red hex plug.

3. Repeat the steps above for each spindle.
Cycle Stops cause the machine to stop at a set machine position which is not adjustable by the operator. Cycle Stops do not disable the cartoner’s servo system. Before, during, and after a Cycle Stop, the servos remain active and “locked” onto the controller.

Press in the CYCLE STOP pushbutton on the Main Operator Control Panel. The LMT will stop after fully gluing a carton.
Changing Pelletizer Die

1. Raise pelletizer shroud.
   A. Loosen the blade pressure adjust lockdown.
   B. Rotate the blade pressure adjust handwheel counter clockwise to back pelletizer blades away from die face.
   C. Loosen the shroud lock bolts.
   D. Raise shroud with hoist and pivot the shroud away from the pelletizer die door.

2. Remove door from pelletizer
   A. Remove allen bolts.
   B. Attach the hoist to the pelletizer door. Remove slack from chain, but do not bind door hinges.
   C. Remove the door hinge pins.
   D. Remove door.

3. Install the die plate
   A. Place the appropriate die plate (wheat or bran) in the door.

4. Reinstall the pelletizer door
   A. Reinstall the door to pelletizer but do not close door.
   B. Swing door shut.
   C. Install Allen bolts in the door. Tighten bolts in proper (criss-cross) sequence.

Note: If the pelletizer has not been sanitized since the last run, flush out system with fresh grain.
SECTION 5

FOLLOW-UP, REINFORCEMENT AND RECOGNITION
Reasons Follow Up/Reinforcement Does Not Happen

Follow Up and Reinforcement are truly the GLUE that will make training stick and build lasting cost savings from your equipment reliability! Without it you automatically reduce your investment payback at least 50%!

If that’s true, why don’t people do it?

The reasons/excuses are plentiful!

- Don’t have the time
- Don’t have the money
- Don’t have the staff
- People move in and out of positions so often it wouldn’t pay
- We don’t have the internal trainers to do this
- We’re on to the next project
- Etc…

I’m sure you can add to this list.

So our challenge is how we build follow-up and reinforcement into the training process so that it is:

- Natural – becomes a ‘way of doing business’
- Affordable
- Doesn’t require heavy supervision
- Not time consuming

What are the reasons your company doesn’t do adequate follow up and reinforcement of training?
Root Cause Analysis

Now that you have identified WHY your company doesn’t do adequate follow up and reinforcement of training let’s try to identify the root cause for those reasons.

We’ll do that by identifying the root cause through a 5-Why’s Root Cause Analysis process.

To complete the 5-Why’s Root Cause Analysis begin by listing the most likely reasons or issues that have created this problem. Pick your top three from the previous page. (You can use as many as you like but for today’s exercise we’ll use just three.) Put one in each of the boxes after “Key Reason.” For each reason/issue ask why 5 times. When you get to the bottom – the last why – you should be very close, if not exactly, to the root cause. You’re now ready to start doing some work to reduce and/or eliminate that cause.

Let’s try it...

<table>
<thead>
<tr>
<th>Key Reasons</th>
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<tbody>
<tr>
<td>Why?</td>
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<tr>
<td>Why?</td>
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<td>Why?</td>
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<td>Why?</td>
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<td>Why?</td>
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</table>
## Example – Root Cause Analysis

<table>
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</thead>
<tbody>
<tr>
<td>No Time</td>
<td>People are now running the equipment – no extra people are budgeted for.</td>
<td>Training is rarely or sufficiently budgeted for - just the basics get budgeted.</td>
<td>Little value placed on training. No accountability or cost analysis is done on benefits or consequences</td>
<td>Never been done. Never measured the benefits or consequences. No one asks…</td>
<td>Don’t see the tangible value – the payback.</td>
<td></td>
</tr>
<tr>
<td>No Money</td>
<td>No training budget left from the capital project or in any other training budget.</td>
<td>Never got prior estimates to adequately budget. It wasn’t a part of the planning process.</td>
<td>Project team is focused on the technical part; training is often just a generic cost listed under service.</td>
<td>Don’t have the interest or expertise. Don’t get rewarded for it.</td>
<td>Don’t see the value; don’t have accountability for training results.</td>
<td></td>
</tr>
<tr>
<td>No Internal Trainers/SME’s to do the follow up</td>
<td>Don’t have the money for them.</td>
<td>Never had them before so haven’t budgeted it.</td>
<td>Training has always been given only during installation by vendors – engineers work that out.</td>
<td>It’s always been done that way.</td>
<td>Don’t see the value. Never been demonstrated by tangible numbers.</td>
<td></td>
</tr>
</tbody>
</table>

By doing this root cause analysis you can see how all the key issues boil down to basically one root cause…

**No one sees the VALUE**… no one has been held accountable to show its value!
Suggestions and Possibilities

With the root cause in mind (sees no value) you need to go back to the first section (p. 10) and take a harder look at the equipment reliability worksheet. You need to demonstrate the value. This can be one of your strongest cases for sufficient follow up and reinforcement training. You may need help from your accounting and engineering departments to gather some of these costs. You’ll be surprised how high they are, especially when you look at the cumulative dollar value that can be lost from poor and/or inadequate training. I’ll bet no one has ever done this before.

Once you have the decision makers’ attention, based on the equipment unreliability worksheet figures, you need to have a realistic plan in mind to offer.

Here are a few ideas:

1. Select and train internal trainers to conduct follow up. (Section 4)

2. Identify learning partners to practice and reinforce the new skills.

3. Develop simple job aids that will be easy to make and use for reinforcement. (See Section 4).
   a. Job Breakdowns
   b. Checklists
   c. Performance Checks
   d. Troubleshooting Guides
   e. One Point Lesson (OPL)
   f. Standard Operating Procedure (SOP)

4. Build a follow up agreement plan with the customers to:
   a. Identify training/learning gaps
   b. Schedule follow up sessions on key performance areas that need additional attention.
   c. Build an online Q&A process for communicating questions and answers on an ongoing basis, then add these to the troubleshooting guide or build a FAQ list.
Select and Train Internal Trainers

By selecting and training internal trainers your customer can:

- **Build internal capacities** that are ongoing. They already have the people; they just need to give them the opportunity to develop some new skills. It’s very simple but makes excellent business sense. The 4-Step training process in Section 4 can easily be taught to people. This is WIN-WIN. Use learning partners wherever possible.

- **Have internal resources to use at any time.** They can be called upon to “coach” internal staff to reinforce the new skills. They can also do periodic checks to catch bad habits before they get too ingrained. This is one of the best follow up techniques.

- **Have a core of people to build/change the job aids (JPAs) to keep them current.** These JPAs will also be used for new employees. You can laminate them and keep them in a “skill job aid box” by area. Some of you may remember the old SRA reading systems from grade school. A student would take a “learning card”, review it, replace it, and move on to the next one. Internal staff could do the same thing with their job aids. They are good for adult learners who learn best in small chunks.

- **Send them to the vendor’s site prior to installation to be a part of the equipment construction.** This would help give them more information and a head start on learning. They could then co-train with the vendors to develop their own skills. They then can be responsible for the follow up training.

- **Build leadership skills and ownership** into the staff, especially if they are the end users of the equipment/process/system. This builds self-esteem and pride while building employee morale.

Developing Job Performance Aids (JPAs)

Develop Job Aids that will be easy to make and use. (This could be done by the customer and their internal trainers or SMEs at the location. Equipment vendors can help them.)

By developing simple, user friendly job aids (JPAs) you:

- Have tools readily available to use for training follow up and reinforcement as well as evaluation tools.

- Can always update them as changes occur. They should be prepared on software common to the location.

- Can use the development of them as a reinforcing and learning exercise in itself. It can be a five minute exercise or much longer depending on the needs of the individual employees. It’s an excellent and fun way to learn. This is particularly good to enhancing the troubleshooting guides. You can add their names to the JPA - they’ll be proud of this and take more ownership.


Build Follow-Up Plan

• Build a Follow Up Plan with the Customer.

Once vendor training has been completed:
- Jointly review the evaluation sheets along with the training observations to decide where training/learning gaps appear to be.
- Jointly discuss follow up options and how to complete them. It might mean: (just to name a few)
  • Vendors spending time with the internal trainers (before the vendor leaves)
  • Building online feedback loops
  • Developing better job aids
- Identify times for follow up visits where the vendor can conduct short, sessions dealing with the areas that need more instruction or reinforcement. This could easily be determined by the end users’ feedback now that they have experience, or by the areas of high downtime. These visits should be included in the initial purchase agreement if at all possible.

Find someone to champion training!

Often you’ll find there is no one at the location that has training as their job responsibility. FIND SOMEONE! Ask upfront who would be the best person to champion and coordinate the training efforts. This could be anyone associated with the new equipment/system. This can be a good temporary developmental assignment. This focused person’s efforts will pay for itself many times over.
Identifying the Training and Learning Gaps

Before developing a TRAINING FOLLOW UP PLAN you need to identify the training/learning gaps, as best as can be observed and demonstrated during the training. These are gaps that exist when the training has been completed. They can occur for many reasons:

- Lack of time to sufficiently train
- Lack of access to the equipment for “hands-on” training
- Low skill levels of trainees
- Insufficient time to “practice” what was learned
- Instructor called away to install
- Instructor was poorly trained, unprepared, inexperienced or ineffective

The only ways you can gather this info is to:
1. Review the class evaluations
2. Observe the class and hands-on demos
3. Observe/review the “performance checks”
4. Match the training goals with the actual performance. It’s important to remember that the goals should be measurable and not just in terms of “activities.” They should be performance based.

It’s important to learn from past experiences. After each training experience ask these questions and document the answers for future reference/opportunities.

**HINT**

Questions to always ask at the conclusion of the training
- Thinking over this training experience what worked particularly well?
- Why? Who/what was most helpful?
- What would you envision doing more of next time?
- What was less than effective that you wouldn’t repeat?
The following pages are samples that can be helpful in your gap analysis and planning.

<table>
<thead>
<tr>
<th>Estimated Achievement Level (0=Unable to conduct, 5=Met Goal)</th>
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<tbody>
<tr>
<td>Learning Goal #:1</td>
</tr>
<tr>
<td>Recommended Follow Up to Achieve Goal:</td>
</tr>
<tr>
<td>Learning Goal #2:</td>
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<tr>
<td>Recommended Follow Up:</td>
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<td>Learning Goal #3:</td>
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<td>Recommended Follow Up:</td>
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<td>Learning Goal #4:</td>
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<td>Recommended Follow Up:</td>
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<tr>
<td>Learning Goal #5:</td>
</tr>
<tr>
<td>Recommended Follow Up:</td>
</tr>
</tbody>
</table>
**Template – Follow Up Plan**

<table>
<thead>
<tr>
<th>Area for Follow Up</th>
<th>By Who</th>
<th>By When</th>
<th>Recommendation for Follow Up</th>
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</table>

*Project:*  
*Training Coordinator:*  
*Supervisor:*  
*Date:*  
*Vendor Contact:*
How do we measure the impact of training?

For too long training, and its impact, has not been measured. Training was usually considered “something we have to do” but it rarely got much attention for all the reasons that have already been discussed. Although each environment is different, here are a few measures to look at that can help you begin to quantify the impact of your training. After each topic are questions that can help direct you into finding ways to measure.

Projected Startup Timeline

- Remove the actual technical problems that could affect the startup curve and look at the ability of the end users to startup as planned, or even better, faster.

- Did the line/equipment/process start up as planned?

- Was the timeline/equipment/process start up accelerated due to the end users ability to work effectively? (Calculate the $$ saved/gained by being able to get the payback sooner from the accelerated startup curve.)

- If there wasn’t training and the productivity levels were low, how much did they increase/improve with training?

Lack of Dependence on the Outside Vendor (service reps)

- A real indicator of effective training is the ability of the end users to operate, repair and maintain your equipment independently.

- Is the end user able to resolve problems independently?

- Is the end user able to reduce or eliminate the need to call equipment vendors for service calls? (Calculate the cost savings here)

- Were you (the vendor) required to make an excessive amount of free service calls that cost you more than projected?

- Are your warrantee costs high?

Lack of Downtime due to Operator Error

- Most downtime has to be accounted for and is documented. It’s easy, if the documentation is good, to show the amount, lack of, or decline in downtime caused by end user.

- What is the typical percentage of downtime due to end user error?

- What amount of downtime, on this project, can be attributed to end user error?

- Has it been reduced/eliminated since training occurred? (Calculate the cost of downtime in terms of …)

- How much extra overtime was incurred due to retraining?

- What was projected verses used? If less, what is the cost savings?
Ability to Deliver Technical Training Independently.

- Often vendor trainers are called in to do much repeat training – creating expensive outside dependencies. Some follow up vendor training is essential BUT if your customer’s internal trainers can now deliver the training you can easily show cost savings.
  - Did your customer have to call in service reps to conduct additional training, aside from what was planned? or
  - Was your customer able to conduct all the follow up training internally?
    (Calculate what it would have cost if done by external resources vs. internal to show cost savings.)

Review and Compare Expected Performance Indicators.

- Look at all the performance indicators that have been presented in the initial Capital Appropriation Request. Identify the ones that could be affected by training. Compare the numbers and see where training has had an impact.
  - Was the waste lower than projected?
  - Were the raw and packaging costs lower than projected?
  - Were there any accidents?
  - How much overtime occurred due to rework? What was projected?
  - Was the cycle time achieved? On time? Earlier?
    (Any of these could show the positive impact of training.)

Compare Goals Against Status Upon Completion of Training.

- If you’ve done a good job of setting up performance goals with your customer while preparing a partnership agreement then measurement should be fairly easy.

- Did you achieve your training/learning goals on time and within budget? (If ahead of time, show results because of that.)

Build a Database with Training History.

- This will help you to illustrate improvement with each training initiative. Do this for each project.
  - Collect cost of training
  - Time
  - Labor hours
  - External resources
  - Material development

⚠️ HINT

All of these are areas to look at for cost and cost savings. To show value you need to know what the norm/standard is and compare that to this project. Often this can’t be shown till the equipment/line/process is up and running for a period of time – usually tied into a start up curve. But the results should be long term, if they are effective.
Now that we’ve talked about what CAN be done, spend a few minutes to identify what things you’d like to improve or add to your company’s training resources.

### Recommendations to take Back to Your Company

<table>
<thead>
<tr>
<th>Areas to Add/Improve/Utilize</th>
<th>Next Step/s</th>
<th>By When</th>
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<tbody>
<tr>
<td>Cost of Equipment Reliability Worksheet (p. 10)</td>
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<tr>
<td>Total Cost of Equipment Ownership (p. 13)</td>
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<td>Cost Calculator (p. 14-15)</td>
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<tr>
<td>Training and Documentation Specs (p. 41-42)</td>
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<td>Training and Documentation Overview Brochure (p. 34-35)</td>
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<td>Training Proposal (p. 44)</td>
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<td>Training Needs Assessment (p. 57)</td>
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<td>Pre Requisite Checklist (p. 63)</td>
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<tr>
<td>Request for Proposal RFP (end users) (p. 48)</td>
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<td>Partnership Agreement (p. 66)</td>
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<td>Integrators Question List (p. 69)</td>
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<td>Training Grant Info (p. 70-71)</td>
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<td>Pre-session Checklist (p. 95)</td>
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<td>Training Follow Up Plan (p. 127)</td>
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<td>Training Evaluation Form (p. 128)</td>
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<td>4-Step Training Process Script (p. 130)</td>
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<tr>
<td>Weekly/Daily Training Schedules (P.134-137)</td>
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<td>Getting Started Job Task Analysis (p. 142)</td>
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<td>Training Course Overview (p. 145)</td>
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<td>Training Content Matrix (p. 146)</td>
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<td>Lesson Plans Worksheet (p. 151)</td>
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<td>Job Breakdowns (p. 153)</td>
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<td>Checklist (p. 155)</td>
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<td>Performance Checks (p. 156)</td>
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<td>Troubleshooting Guides (p. 158)</td>
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<td>Standard Operating Procedure (SOP) (p. 163)</td>
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<td>One Point Lesson (OPL) (p. 171)</td>
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<td>Training Evaluation Form (p. 161)</td>
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<td>Sign-In Sheet (p. 162)</td>
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<td>Root Cause Analysis (p. 178)</td>
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<td>Training &amp; Learning Gap Worksheet (p. 184)</td>
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<tr>
<td>Equipment Manufactures Training Self Audit (p. 193)</td>
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<td>End Users Training Self Audit (p. 194)</td>
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<tr>
<td>Safety Analysis Grid (eLearning Module)</td>
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</table>
## The Best of “what is” when I train:

Based on the feedback I received in this workshop from my peers, as well as, feedback I’ve received in the past, these are the things I do best when it comes to training for customers.

---

### I personally want to develop/enhance these skills

<table>
<thead>
<tr>
<th>Skill</th>
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<tbody>
<tr>
<td>Listening</td>
</tr>
<tr>
<td>Developing course outlines/training plans</td>
</tr>
<tr>
<td>Allowing trainees more time to try each task out</td>
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<tr>
<td>Providing feedback</td>
</tr>
<tr>
<td>Requesting feedback</td>
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<tr>
<td>Demonstrating more clearly</td>
</tr>
<tr>
<td>Asking more and better questions</td>
</tr>
<tr>
<td>Preparing trainees for learning</td>
</tr>
<tr>
<td>Develop partnership agreements</td>
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<tr>
<td>Other:</td>
</tr>
</tbody>
</table>
## End-User’s Technical Training Self Audit

**Take a few minutes to see how your training measures up to “Best Practices” in the industry.**  
**Check off all that you have and put your total points for each section on the far left. Add up your total points for all three sections for your total. Compare yourself to “Best Practices” in the industry.**

<table>
<thead>
<tr>
<th>Points</th>
<th>Topic</th>
<th>Content (add up the points listed for each item you check off)</th>
</tr>
</thead>
</table>
|        | Planning | You have training and training documentation specs identified and in writing. (4)  
|        |         | You have a formal Request for Proposal (RFP) that you send to your training providers (equipment and/or suppliers) (5)  
|        |         | You have talked to the OEM and scheduled safety training prior to entering the plant. (4)  
|        |         | You provide your equipment supplier (OEM) with background information about the location that the training is going to be at. (3)  
|        |         | You participate in their training “needs assessment” so they can customize their training to meet your needs. (5)  
|        |         | You share your expectations with your OEM and set measurable training goals. (5)  
|        |         | You have a designated training coordinator who understands training (5)  
|        |         | You just ask the OEM if they provide training and expect that it will be delivered prior to start-up. (-2)  
|        |         | You have training designated as a line item in your budget rather than in a general category like "service". (3)  |
|        | Installation & Training | You have internal trainers that can assist with the training (they may be a lead person, a formal trainer and/or an SME with good training skills that you use as trainers when needed). (10)  
|        |         | You have consistent sign-in sheets that show how long each trainee was able to stay in the training session. (3)  
|        |         | You have consistent feedback sheets for all training (3)  
|        |         | You ensure that a classroom is available for training with all the requested materials. (4)  
|        |         | You ensure that the equipment will be available for training as requested. (8)  
|        |         | You work together with the OEM to develop an effective schedule (4)  
|        |         | You work together with the OEM on evaluations (4)  
|        |         | You abide by the expectations committed to (5)  
|        |         | You send only appropriate trainees to class (5)  
|        |         | You don’t pull out trainees from formal training (5)  |
|        | Follow-Up | You have a discussion with the OEM trainer once the training is completed (5)  
|        |         | You develop a follow-up plan (5)  
|        |         | You provide OEM with feedback. (5)  |

**How do you compare to “Best Practices” in the industry?**

75 – 100 – You ARE considered “best Practice” in the industry – Congratulations! You probably have a very good partnership with your OEMs.

50 – 75 – You are using many good training tools but still have room to improve

25 – 50 – You’ve just scratched the surface on using effective training practices

0 – 25 – Yikes, we can safely say you probably have and repeat service calls because your people don’t know how to operate and/or repair your equipment. You have a lot of room to improve.
Equipment Manufacturers Training 
Self-Audit

*Take a few minutes to see how your training measures up to “Best Practices” in the industry. Check off all that you have and put your total points for each section on the far left. Add up your total points for all three sections. Now, compare your self to “Best Practices” in the industry.*

<table>
<thead>
<tr>
<th>Points</th>
<th>Topic</th>
<th>Content (add up the points listed for each item you check off)</th>
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<tbody>
<tr>
<td></td>
<td>Planning</td>
<td>o We have a training brochure to explain our training services (5 points)</td>
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<td>o We prepare formal training proposals (5)</td>
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<td>o We conduct a “needs assessment” with customers (5)</td>
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<td>o We have course outlines/overviews for each course we offer (5)</td>
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<td>o You have identified what safety requirements your end-user has prior to entering the plant as well as safety for the training itself. (5)</td>
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<td>o We merely send out a service tech who does informal OJT as needed (2)</td>
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<td>o We have training manuals for each group to be trained (3)</td>
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<td></td>
<td></td>
<td>o We have a designated training coordinator for all our training (5)</td>
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<td>o We discuss training informally with the customer and let the service tech train informally when he finished installing if there is time (1)</td>
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<tr>
<td></td>
<td></td>
<td>o You share your expectations with your end-user and set measurable training goals (5).</td>
</tr>
<tr>
<td></td>
<td>Installation &amp; Training</td>
<td>o We have dedicated trainers who have both service tech experience and training skills (5)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o We use PMMI (or other training certification) certified trainers (5)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o Our service tech who is installing also trains (2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o We work with their internal trainers. (4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o We have specific objectives and training agendas for each work group to be trained (ex. Operators, mechanics, etc) (5)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o We have specific training manuals, materials for each group to be trained. (5)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o We provide feedback sheets at the end of training. (3)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o We expect trainees to demonstrate their ability to do the tasks taught during the training to assess their skill level. (10)</td>
</tr>
<tr>
<td></td>
<td>Follow Up</td>
<td>o We provide customers with a copy of the feedback sheets (3)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o We provide specific feedback on how the trainees demonstrated during their performance checks (10)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o We provide recommendations for “next steps” to reinforce the learning or recommend what additional training would be needed. (7)</td>
</tr>
</tbody>
</table>

**Total Score**

How do you compare to “Best Practices” in the industry
75 – 100 – You ARE considered “best Practice” in the industry – Congratulations! You must have a very good partnership with your customers.
50 – 75 – You are using many good training tools but still have room to improve
25 – 50 – You’ve just scratched the surface on using effective training practices
0 – 25 – Yikes, we can safely say you probably have excessive service calls from customers who don’t know how to operate and/or repair your equipment. You have a lot of room to improve.
Resource List

**Websites**

- www.pmmiu.org: PMMI Training registration and tracking
- www.astd.org: Association of Training and Development
- www.ispi.com: International Society of Performance Improvement
- www.learningware.com: Games to enhance training
- www.pmmi.org: PMMI
- www.pmmi.org/ms/certified: PMMI Certified Website
- www.babelfish.com: Online Language Translation
- www.freetranslate.com: Online Language Translation
- www.clarion.com: Safety labels/icons
- www.reliabilityweb.com: Hints on equipment reliability/use
- www.changeover.com: Site on equipment changeover hints and articles
- www.omniglot.com: online language translation with voice

**Books**

*The Great Game of Business*, Jack Stack (description of Open Book Management – getting employees to understand and get involved with financial aspects of business.)

*The Project Management Workbook: Field-Proven Strategies for Managing Your Greatest Assets*, Nancy B. Cobb (adds a great deal more detail to many of the topics covered in class plus more forms)


*Establishing the Value of Training*, Sharon G. Fisher, HRD Press, (800) 822-2801

*Computerized Job Aids for Trainers*, Sharon G. Fisher, HRD Press, (800) 822-2801

*Optimizing Training Transfer*, Bob Pike, Lakewood Publications, (612) 333-0471

*Designing Training for Results*, Dave Zielinski, Lakewood Publications, (612) 333-0471

*Making Training Pay Off on the Job*, Dave Zielinski, Lakewood Publications, (612) 333-0471

*How to Write Training Materials*, Linda Stonewall, Jossey-Bass/Pfeiffer

*Evaluation, 10 Significant Ways for Measuring and Improving Training Impact*, Sandra Merwin, Jossey-Bass/Pfeiffer


*Kiss, Bow or Shake Hands, How to Do Business in Sixty Countries*, Terri Morison, Wayne A. Conaway and George A. Borden (Excellent overviews of cultural differences)
PMMI Educational Resources

Tuition Reimbursement
Would you like to attend on-the-job training but cannot afford it? The PMMI Foundation can help you pay for your job-related training! The Tuition Reimbursement program was established to encourage and support the efforts of individuals furthering their education. The program is exclusive to members of PMMI.

The Certified Trainer Workshop is eligible for reimbursement for PMMI members. Please visit www.pmmi.org/tuition for more information.

PMMI Service Publications
For a complete listing of publications please log on to PMMI.org and then click on PMMI Store, or email Danny Martinez at danny@pmmi.org for a copy of our publication brochure.

The ANSI/PMMI B155.1-2006: This was developed as a voluntary standard to establish safety requirements with respect to the construction, care and use of packaging and packaging-related converting machinery.

Risk Assessment Basics and Overview for Packaging Machinery: Risk assessment is a critical factor in successfully reducing risks to an acceptable level. This guide is intended to provide a general understanding of the principals of risk assessment and how these can be applied to packaging machinery.


Packsafe Risk Assessment Software: An easy to use, checklist approach to risk assessment. Can be used to meet customer requirements such as FMEA, CE Mark and HACCP. The software has helped members improve safety, decrease machinery changeover time, provide professional documentation for customers, ease the integration of a packaging line or system, and much more For information please log on to www.pmmi.org/packsafe.

PMMI Technical Documentation Content and Style Guide: Developed by an industry focus group made up of PMMI members, end users and documentation specialists, this guide was written to provide guidelines for the development of operating maintenance, repair and training documentation. The PMMI Technical Documentation Content and Style Guide is divided into two sections: “Technical Content” and “Style.” Technical Content outlines and defines the content and organization of the technical information needed to operate, troubleshoot and repair equipment safely, efficiently and effectively. The purpose of “Style” is to make technical documentation and training manuals easier to read and use.

To obtain any of these documents go to www.pmmi.org.
Translation and Documentation Resources

**Society for Technical Communicators (STC) (www.stc.org)**

Anyone can post a job (for a document writer) on this site. It is free of charge. Just go to the “post a job” link on the bottom of the STC Homepage and enter all your information. The posting will last 60 days. Should you fill the position and want to remove the posting, please Email (russ@stc.org) with the job posting number and let him know you would like for it to be removed.

**Instruction Design & Learning SIG.**

http://www.stcsig.org/idl/

They provide service in French, German, Spanish, Hebrew, Japanese, Dutch, Traditional & Simplified Chinese, Korean, and Italian

MultiLing Corporation
55 North University Ave.
Provo, UT 84601
TEL: 801.377.2000
FAX: 801.377.7085
www.multiling.com

They provide translations using in-country, native-speaking translators in a variety of industries, including highly technical documentation for the likes of instruments designed for infrared analysis of semiconductor wafers; gas analysis; microscopy; infrared, Raman, and dispersive spectroscopy. Before you select a translator, do get recommendations, do check references, do send sample text for translation and have it reviewed by native speakers in their in-country sales/service offices, do compare pricing… and use the information you find on the International Technical Communication SIG’s website.

**International Technical Communicators Special Interest Group.**

(SIGs are smaller facets of the STC as a whole.) The website is http://www.stcsig.org/itc/index.htm

**Association for Computing Machinery’s Special Interest Group on Documentation (www.acm.org/sigdoc/).**

This is a professional association of about 23,000 members worldwide, so if you are looking to fill a position, you may want to post it on their jobs database.

**ATA American Translators Association (www.atanet.org).**

www.babelfish.com – for translation on the Internet
www.freetranslate.com – online translation
www.omniglot.com – online language translation with voice
# PMMI Technology Training Resource List*

*This list consists of names referred to us as resources from many people associated with technical training – it does NOT imply PMMI’s endorsement of them. *5/6/08

<table>
<thead>
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<th>What They Offer or Who they are</th>
<th>Where to Go</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLCOpen</td>
<td>Maintain the IEC 61131-3 programming standard.</td>
<td><a href="http://www.PLCopen.org">www.PLCopen.org</a></td>
<td>A good source for basic information on this standard as well as examples of how the languages are used.</td>
</tr>
<tr>
<td>Open DeviceNet Vendors Association</td>
<td>Maintain the standard for DeviceNet and Ethernet/IP</td>
<td><a href="http://www.ODVA.org">www.ODVA.org</a></td>
<td>Information about networking using these two standards.</td>
</tr>
<tr>
<td>Center for Automation and Control Alexander Technical College</td>
<td>Formal technical classes in a lab setting at the school and in industry.</td>
<td>Ken Ryan <a href="mailto:kenr@camc-online.org">kenr@camc-online.org</a> <a href="http://www.camc-online.org">www.camc-online.org</a></td>
<td>Leader in the latest automation technology education, especially IEC 61131-3. Certified by PLCopen.</td>
</tr>
<tr>
<td>ELAU</td>
<td>Specializes in packaging automation systems using the standards listed here.</td>
<td>Brent Cucharski <a href="mailto:brent.cucharski@elau.com">brent.cucharski@elau.com</a> <a href="http://www.ELAU.com">www.ELAU.com</a> <a href="http://www.info@elau.com">www.info@elau.com</a></td>
<td>Contact training manager Randy Horton for both maintenance and programming training for their systems, as well as an IEC 61131-3 overview course.</td>
</tr>
<tr>
<td>Changeover.com</td>
<td>Specialist in Changeover solutions and training, development of SOPs</td>
<td>John Henry <a href="http://www.changeover.com">www.changeover.com</a> 787-863-9134</td>
<td>John is well known as the changeover wizard and has designed and developed many excellent packaging training programs.</td>
</tr>
<tr>
<td>Rockwell Allen Bradley</td>
<td>List of all the training that is provided via classroom, web and computer based, etc</td>
<td><a href="http://www.AB.com">www.AB.com</a></td>
<td>Source for all training and support information, you can do skills self assessments to identify what classes you need to take. These are done by course topic.</td>
</tr>
<tr>
<td>SERCOS NA</td>
<td>Maintain information on the SERCOS motion communication network standard</td>
<td><a href="http://www.SERCOS.com">www.SERCOS.com</a></td>
<td>Many servo motion systems today use SERCOS as the communication standard.</td>
</tr>
<tr>
<td>Amatrol</td>
<td>Excellent provider of technical training onsite or at their location.</td>
<td><a href="http://www.amatrol.com">www.amatrol.com</a> 800-264-8285 Dave Dahline</td>
<td>They use many teaching approaches – Functional software, teacher-led, assessment software, team-based projects and interactive multimedia.</td>
</tr>
<tr>
<td>TTS – Technical Training Services</td>
<td>Provider of customized technical training at customers location</td>
<td><a href="mailto:tts@techtransfer.com">tts@techtransfer.com</a> 813-908-1100 Lou Rivera Anthony Foskay</td>
<td>Designs and delivers classroom/OJT technical classes, writes OEM manuals and installs Maintenance Systems.</td>
</tr>
<tr>
<td>Local Technical or Community Colleges</td>
<td>Provide standard classes or customized technical training through their business institute departments at customers location or their campuses</td>
<td>Research your own area</td>
<td>These classes and colleges typically have access to grant money that may help you pay for the training. They can design technical training assessments to meet your needs.</td>
</tr>
<tr>
<td>Company</td>
<td>Services Provided</td>
<td>Contact Information</td>
<td></td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Schneider Electric</td>
<td>Offers training courses on a number of automation and control topics related to their products, technologies, and solutions.</td>
<td>Jarrett Campbell, 919-217-6463, <a href="mailto:Jarrett.campbell@us.schneider-electric.com">Jarrett.campbell@us.schneider-electric.com</a>, <a href="http://www.us.schneider-electric.com">http://www.us.schneider-electric.com</a></td>
<td></td>
</tr>
<tr>
<td>Applied Performance Strategies (APS)</td>
<td>Provides customized technical training at customers' location. Designs and develops training manuals and delivers training programs.</td>
<td>Contact: Dave Thames, 410-650-0800, <a href="mailto:dthames@aps-online.net">dthames@aps-online.net</a>, <a href="http://www.aps-online.net">www.aps-online.net</a>, <a href="http://www.e2m.com">www.e2m.com</a>, 800.622.4326</td>
<td></td>
</tr>
<tr>
<td>E2M Polytron</td>
<td>A systems integrator, providing training program development, content development, and technical training.</td>
<td>Brent Stromwell, 800.622.4326, <a href="mailto:bstromwell@e2m.com">bstromwell@e2m.com</a></td>
<td></td>
</tr>
<tr>
<td>RWD Provider</td>
<td>Provides customized technical training.</td>
<td>1-888-RWD Tech, <a href="http://www.rwd.com">www.rwd.com</a></td>
<td></td>
</tr>
<tr>
<td>Reading Area Community College</td>
<td>Provides training in mechatronics, networks, IEC61131, robotics, and other technical areas.</td>
<td>John DeVere, Associate Dean, 717-832-0115, <a href="mailto:John.devere@racc.edu">John.devere@racc.edu</a></td>
<td></td>
</tr>
<tr>
<td>Partners in Possibilities</td>
<td>Provides advanced training and support automation according to a long range plan aimed at achieving specific business objectives.</td>
<td>Nancy B. Cobb, 708-246-3106, <a href="mailto:cobbnb@comcast.net">cobbnb@comcast.net</a>, <a href="http://www.NOCTI.org">www.NOCTI.org</a></td>
<td></td>
</tr>
<tr>
<td>Lincoln Educational Services</td>
<td>Customized training division of a packaging-related mechatronics training provider.</td>
<td>Brian San Angelo, National Director Industry &amp; Government Training, 973-96-9340, ext. 48514, <a href="mailto:bsanangelo@lincolntech.com">bsanangelo@lincolntech.com</a>, <a href="http://www.lincolneducationalservices.com">www.lincolneducationalservices.com</a></td>
<td></td>
</tr>
<tr>
<td>Ramsey</td>
<td>Provides training in mechatronics, networks, IEC61131, robotics, and other technical areas.</td>
<td>Contact: 717-832-0115, <a href="http://www.wssc.org">www.wssc.org</a></td>
<td></td>
</tr>
</tbody>
</table>
SECTION 7
TEMPLATES
This section includes all the templates that were included in this workshop. We’ve separated them for ease in locating and or duplication. Also included with these materials is a CD ROM with electronic versions of the templates. We will continually be adding or updating the templates and will make them available to you via email or the Internet by going to www.pmmi.org/ms/certified

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- Safety Analysis Grid (eLearning Module)
Cost of Equipment Unreliability Worksheet

Try to use this to identify the cost of unreliability due to ineffective or inadequate training. (Use a few or as many items below as you need to help you effectively show true cost benefits/saving.)

<table>
<thead>
<tr>
<th>PROJECT: ABC</th>
<th>COST OF TRAINING:</th>
<th>COST OF EQUIPMENT UNRELIABILITY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vendor cost @ hr:</td>
<td></td>
<td>Cost per hour of downtime:</td>
</tr>
<tr>
<td>Vendor travel &amp; expenses:</td>
<td></td>
<td>Cost of not having necessary and needed parts:</td>
</tr>
<tr>
<td>Participants labor cost:</td>
<td></td>
<td>Raw/Packaging Loss:</td>
</tr>
<tr>
<td>Alternative coverage cost: (ex. overtime, additional help etc.)</td>
<td></td>
<td>Product waste:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(loss due to unplanned set up and repair)</td>
</tr>
<tr>
<td>Documentation/materials:</td>
<td></td>
<td>Rework of product: (labor/ materials)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Production output loss:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Catch up on production time:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lengthy changeover times:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Overtime for repairs:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Service calls:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consumer complaints:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Labor hours: (waiting OT)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Safety:</td>
</tr>
</tbody>
</table>

| Total | Total |

Cost of Equipment Unreliability

\[ \text{Bottomline Savings} = \frac{\text{Total Cost of Equipment Unreliability} - \text{Total Cost of Training}} {\text{Total Cost of Training}} \]
Total COST of Equipment Ownership

**Acquisition Cost:** Purchase price, Engineering, installation and training

**Sustaining costs:** Operating costs: Direct labor, utilities, consumables, reliability

**Maintenance costs:** Material and labor costs. Cost of spare parts, cost of service, life of equipment, decommissioning costs

**The Facts:**

- Only 1/7th of the cost of your equipment ownership is from the initial capital investment or the “acquisition cost”
- Customers have very little control over “sustaining cost”
- The area that your customer has most control over is the “maintenance cost.” To reduce the cost of ownership effective technical training can have a significant impact on your customer’s annual operating budget. It’s an area for cost reduction that hasn’t been tapped effectively.
# Training Cost Calculator

## ROI Calculator

### BASELINE ASSUMPTIONS

<table>
<thead>
<tr>
<th>Units</th>
<th></th>
<th>TRAINING INVESTMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Production Volume Required</td>
<td>Lb 10,000,000</td>
<td>Length of training program Hrs/Course 15</td>
</tr>
<tr>
<td>Length of a production shift</td>
<td>Hrs 8</td>
<td>Trainer Cost $/Trainer 1,500</td>
</tr>
<tr>
<td>Output per production shift @ standard</td>
<td>Lb 10,000</td>
<td>TAE $ 850</td>
</tr>
<tr>
<td>Total cost per unit of production @ standard</td>
<td>$/Lb 0.50</td>
<td>Participant hourly labor rate $/Hr 45</td>
</tr>
<tr>
<td>Total cost of one shift of production @ standard</td>
<td>$/Shift 5,000</td>
<td>Number of participants #/Course 10</td>
</tr>
</tbody>
</table>

### EFFICIENCY CALCULATION

<table>
<thead>
<tr>
<th>Unplanned Equipment Downtime %</th>
<th>6.0%</th>
<th>Documentation $</th>
<th>1,500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rejected / defective product %</td>
<td>3.0%</td>
<td>Total Training Investment $/Course</td>
<td>20,795</td>
</tr>
<tr>
<td>Actual vs targeted speed %</td>
<td>95.0%</td>
<td>Line Efficiency @ standard</td>
<td>86.6%</td>
</tr>
</tbody>
</table>

### PRODUCTION COSTS

<table>
<thead>
<tr>
<th>Required Production Shifts per Year</th>
<th>Shifts/Yr 1,000</th>
<th>Total Cost per Year $/Yr 5,000,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of changeovers per week</td>
<td>#/Wk 2</td>
<td></td>
</tr>
<tr>
<td>Length of each changeover</td>
<td>Hrs/Chg 2.0</td>
<td></td>
</tr>
<tr>
<td>Number of people per changeover</td>
<td>#/Chg 1.0</td>
<td></td>
</tr>
<tr>
<td>Annual changeover cost</td>
<td>$/Yr 8,571</td>
<td></td>
</tr>
<tr>
<td>Service Calls per year</td>
<td>#/Yr 10</td>
<td></td>
</tr>
<tr>
<td>Avg Total Cost per Service Call</td>
<td>$/Call 1,500</td>
<td></td>
</tr>
<tr>
<td>Annual Cost of Service Calls</td>
<td>$/Yr 15,000</td>
<td></td>
</tr>
</tbody>
</table>

### SAVINGS

| Unplanned Equipment Downtime - AFTER training % | 4.0% |
| Rejected / defective product - AFTER training % | 4.0% |
| Actual vs targeted speed - AFTER training %     | 96.0% |
| Change in Efficiency                           | 3.5% |
| Output per shift AFTER training                | Lbs/Shift 10,214 |
| Required Production Shifts per Year AFTER training | #/Yr 9.79 |
| Total Cost per Year                            | $/Yr 4,896,302 |
| Production Savings $/Yr                        | 104,698 |
| Number of changeovers per week AFTER training | #/Wk 2.0 |
| Length of each changeover AFTER training       | Hrs/Chg 1.0    |
| Number of people per changeover                | #/Chg 1.0      |
| Annual changeover cost                         | $/Yr 4,196     |
| Changeover savings $/Yr                        | 4,375 |
| Service Calls per year AFTER training          | #/YR 2         |
| Annual Cost of Service Calls                   | $/YR 3,000     |
| Service Call Savings $/YR                      | 12,000 |
| Total Savings $/YR                             | 121,073 |

Using Your COST Calculator

1. Fill in the shaded YELLOW boxes with actual data OR assumptions
2. The values entered into the shaded boxes under the SAVINGS heading should be better than those entered above or you MAY see a NEGATIVE ROI
3. The calculated values (NO yellow shading) change automatically, including the final ROI
4. Do NOT enter data into any cells other than those with YELLOW shading

Prepared by Dan Pettit for Partners in Possibilities, Inc.
Training and Documentation Brochure Worksheet

Here’s a checklist you can use to begin with that covers the basics. (You can add training philosophy, procedure and any other information that can be helpful to your customer.)

**Company Mission**

**Company Vision**

**Documentation Services:**
- ___Installation Manual
- ___Daily Operation and Maintenance Manual
- ___Mechanical Maintenance and Overhaul Manual
- ___Electrical Service Manual
- ___Software and Controls Manual
- ___Training Guides and/or Manuals
- ___Instructors Manual
- ___Job Performance Aids (JPAs)

**Format Options:** (Good to list the platform/software you use too)
- _____Hard Copy
- _____Floppy Disk
- _____CD Rom
- _____Internet
- _____Other:

PMMI OTJ Training Workshop Template - 2008
5.7.2008
Training Services:
- Certified Trainers (PMMI Certified Trainers)
- Onsite training
- Training at our location (prior to installation)
- Coordination with your internal trainers
- Follow up training and/or training plan to reinforce learning
- Other:

Pricing Structure:
Trainers fee:
  - Contact fee:
  - Travel fee
Material Development:
  - Per hour
  - By project
  - Translations cost
Manual costs:

Travel & expenses:

Contact Information:
Training Contact:
  - Phone:
  - Fax:
  - Cell phone:
  - Email address:
  - Mailing address:
To assist you in understanding our technical training and documentation requirements, the following chart has been prepared. It lists specific components and the recommended guidelines for each. If you have questions or need clarification please contact: the training contact provided.

<table>
<thead>
<tr>
<th>Component</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PLANNING</strong></td>
<td></td>
</tr>
<tr>
<td>Training Overview/Outlines</td>
<td></td>
</tr>
<tr>
<td>Needs Assessment</td>
<td></td>
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<tr>
<td>Terms of agreement</td>
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<tr>
<td>(Partnership Agreement)</td>
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</tr>
<tr>
<td>Proposal</td>
<td></td>
</tr>
<tr>
<td>Training Schedule</td>
<td></td>
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<tr>
<td><strong>Training Documentation</strong></td>
<td></td>
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<tr>
<td>Manuals</td>
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<tr>
<td>Job Aids</td>
<td></td>
</tr>
<tr>
<td>Troubleshooting Guide</td>
<td></td>
</tr>
<tr>
<td>Sign-in Sheets</td>
<td></td>
</tr>
<tr>
<td>Reference Materials</td>
<td></td>
</tr>
<tr>
<td>Evaluation Format</td>
<td></td>
</tr>
<tr>
<td>Instructor’s Guides</td>
<td></td>
</tr>
<tr>
<td><strong>General Guidelines</strong></td>
<td></td>
</tr>
<tr>
<td>Material Dates/Authors</td>
<td></td>
</tr>
<tr>
<td>Font Size</td>
<td></td>
</tr>
<tr>
<td>Pictures</td>
<td></td>
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<tr>
<td>Graphics</td>
<td></td>
</tr>
<tr>
<td>Binding</td>
<td></td>
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<tr>
<td>Electronic Format</td>
<td></td>
</tr>
<tr>
<td>Icons</td>
<td></td>
</tr>
<tr>
<td>PowerPoint</td>
<td></td>
</tr>
<tr>
<td>Definitions</td>
<td></td>
</tr>
<tr>
<td><strong>Instructor/Delivery</strong></td>
<td></td>
</tr>
<tr>
<td>Instructor</td>
<td></td>
</tr>
<tr>
<td>Delivery Methodology</td>
<td></td>
</tr>
<tr>
<td>Course/Instructor Evaluation</td>
<td></td>
</tr>
<tr>
<td>Certification</td>
<td></td>
</tr>
<tr>
<td>Follow Up Recommendation</td>
<td></td>
</tr>
<tr>
<td>Component</td>
<td>Requirements</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td><strong>General Guideline</strong></td>
<td></td>
</tr>
<tr>
<td>Cover</td>
<td></td>
</tr>
<tr>
<td>Introduction</td>
<td></td>
</tr>
<tr>
<td>Instruction</td>
<td></td>
</tr>
<tr>
<td><strong>Specific Content</strong></td>
<td></td>
</tr>
<tr>
<td>Operators</td>
<td></td>
</tr>
<tr>
<td>Product Overview</td>
<td></td>
</tr>
<tr>
<td>Safety – Features, precautions and procedures</td>
<td></td>
</tr>
<tr>
<td>Theory/Sequence of Operation</td>
<td></td>
</tr>
<tr>
<td>Operating Procedures</td>
<td></td>
</tr>
<tr>
<td>HMI Navigation</td>
<td></td>
</tr>
<tr>
<td>Troubleshooting</td>
<td></td>
</tr>
<tr>
<td>Cleaning Procedures</td>
<td></td>
</tr>
<tr>
<td><strong>Mechanical Maintenance</strong></td>
<td></td>
</tr>
<tr>
<td>Safety</td>
<td></td>
</tr>
<tr>
<td>Systems/Operation Overview</td>
<td></td>
</tr>
<tr>
<td>Operating Controls</td>
<td></td>
</tr>
<tr>
<td>Operating Procedures</td>
<td></td>
</tr>
<tr>
<td>Set-up &amp; Calibration</td>
<td></td>
</tr>
<tr>
<td>Changeovers</td>
<td></td>
</tr>
<tr>
<td>Lubrication</td>
<td></td>
</tr>
<tr>
<td>Preventive Maintenance</td>
<td></td>
</tr>
<tr>
<td>Spare Parts List</td>
<td></td>
</tr>
<tr>
<td><strong>Electrical Maintenance</strong></td>
<td></td>
</tr>
<tr>
<td>Safety</td>
<td></td>
</tr>
<tr>
<td>Systems/Operation Overview</td>
<td></td>
</tr>
<tr>
<td>Operating Controls</td>
<td></td>
</tr>
<tr>
<td>Operating Procedures</td>
<td></td>
</tr>
<tr>
<td>Set-up &amp; Calibration</td>
<td></td>
</tr>
<tr>
<td>Removal &amp; Replacement Parts</td>
<td></td>
</tr>
<tr>
<td>Electronic Changeovers</td>
<td></td>
</tr>
<tr>
<td>PLC Architecture &amp; Strategy</td>
<td></td>
</tr>
<tr>
<td>PLC Component</td>
<td></td>
</tr>
<tr>
<td>Troubleshooting</td>
<td></td>
</tr>
<tr>
<td>Basic Robotic Theory</td>
<td></td>
</tr>
<tr>
<td>Preventive Maintenance</td>
<td></td>
</tr>
<tr>
<td>Spare Parts List</td>
<td></td>
</tr>
</tbody>
</table>
Training Proposal – Sample Proposal Content

ABC Company
Training Proposal
Date: 

Customer Name

Project*: 
Project name or just the equipment name/number

Proposal Scope*: 
The range of the total training project—this may include things like needs assessment, course design/development, documentation development, training sessions, evaluation, coordination, etc.

Background: 
You may or may not need to include this section. This typically includes the context of the training—why it is needed, what prompted it, etc. This is also your way of clarifying what you heard the customer wants. The target project dates can be included here too.

Approach: 
You may have a certain approach to training that is important to share with the customer. Ex. All training is held at the vendor’s training center, delivered with internal Subject Matter Experts (SME)/trainers etc.

Deliverables*: 
This is the list of tangible items that will be provided to the customer, including the specific training, documentation, etc. It’s an excellent idea to attach sample course overviews with the proposal to give the customers more details. If you don’t do this with the proposal, it should be sent once you identify their specific needs.

Timeline*: 
This shows when each of the deliverables will happen. In the case of documentation there would be draft, validation and completion dates.

Cost*: (You might want to title this “Investment” instead)
List the specific cost per deliverable plus the total overall cost. NEVER just send a service fee schedule because it doesn’t tell your customer the cost of the training for the project.

Expected Results

Expectations: 
List special requirements you may need like a training contact, access to SME’s to develop the materials, data projector, etc. If you do a partnership agreement this may not be necessary. BUT, if you don’t do a partnership agreement it’s a great place to put this type of information—your responsibilities, their responsibilities.

*These components MUST be included in any proposal
Training Needs Assessment

To effectively develop a customized training program for your staff we’d like to identify the following information:

<table>
<thead>
<tr>
<th>Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company Name:</td>
</tr>
<tr>
<td>Address:</td>
</tr>
<tr>
<td>Project Manager:</td>
</tr>
<tr>
<td>Phone Number:</td>
</tr>
<tr>
<td>Cell:</td>
</tr>
<tr>
<td>Email:</td>
</tr>
</tbody>
</table>

Anticipated Training Dates:

Participant Profile: How many will be participating in the training?

<table>
<thead>
<tr>
<th>NUMBER OF EMPLOYEES TO BE TRAINED</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPE</td>
</tr>
<tr>
<td>------</td>
</tr>
<tr>
<td>Operators</td>
</tr>
<tr>
<td>Mechanics</td>
</tr>
<tr>
<td>Electricians</td>
</tr>
<tr>
<td>Electronic Technicians</td>
</tr>
<tr>
<td>Stationary Engineers</td>
</tr>
<tr>
<td>Supervisors</td>
</tr>
<tr>
<td>Other:</td>
</tr>
</tbody>
</table>

Internal Trainers
Do you have Internal Trainers?

Would they be able to assist with this training?

Would they be able to come to our plant for pre-training? For the FAT?

Are you interested in a train-the-trainer session?
### Current Technology:

- Do you currently have any of our equipment on your production floor? If yes, what? Where is it?
- Have any of the trainees had any training or experience on this equipment, or a similar one?
  
  If so, how much? (none, 0-6 months, 6 months – 1 year, more than a year)

<table>
<thead>
<tr>
<th>Operators</th>
<th>Mechanics</th>
<th>Electricians</th>
</tr>
</thead>
<tbody>
<tr>
<td>------------</td>
<td>-----------</td>
<td>--------------</td>
</tr>
</tbody>
</table>

### New Technology:

To the best of your knowledge, is there any technology on our equipment that is new to those that will be trained? If yes, what is it?

### Current Skill Level

Thinking of the current skill level of the employees to be trained please provide us with an estimate of their current skill level, using this guide:

- **Unknown** – Uncertain about the participants skill level
- **Level 1** – Low skill level – need to start with the basics; little to no prior experience
- **Level 2** – Good Basic level – Have some prior packaging experience need only the specific of the equipment
- **Level 3** – High skill level – Have solid experience with similar equipment before

<table>
<thead>
<tr>
<th>Job Classification</th>
<th>Unknown</th>
<th>1-Low</th>
<th>2-Basic</th>
<th>3-High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operators</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mechanics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electricians</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electronic Techs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Skill Gaps:

What would you say are the biggest skill gaps we'll encounter?

### Cultural Changes:

Are there any cultural changes happening that we should be aware of?

### Training Grants:

Do you currently have a training grant? Are you interested in learning more about obtaining one?
**Special Needs:**
Do any participants have special needs that require accommodations? If so, what?

**Language:**
Do all participants speak English? Read English? If not, what language is spoken? Will materials need to be provided in other languages? Explain.

**Available Resources:**
Please check off the facilities and training equipment that you have available for our training:

- [ ] Classroom
- [ ] Technical Learning Lab
- [ ] Flip Charts
- [ ] Data Projector/screen
- [ ] White or Chalk Board
- [ ] Simulator
- [ ] Access to the powered equipment during training
- [ ] Product for the equipment

**Training Goals/Expectations**
To clarify training expectations, and support the success of this project, we’d like you to help us identify:

- Your expectations of us
- Our expectations of you
- Targeted training goals
- Follow up strategy

Who would be the best person to discuss this with?

Name_________________________________
Title_________________________________
Phone Number _________________________
Email _______________________________

**Contact Information:**
Name
Email address
Phone
Cell phone Fax
Technical Training Prerequisite Skill Checklist
Please check off the appropriate box on the right side for each skill listed indicating the current skill level of the trainee.

<table>
<thead>
<tr>
<th>Course Name:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Skill Levels</th>
<th>No Experience</th>
<th>Some Experience</th>
<th>Solid Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operators</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mechanics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electricians</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Prepared by:  
Date:  
Revision Date:
Dear Equipment Vendor,

We are pleased that …..has selected your equipment as an important component of the XYZ project at the XXXXX facility, and look forward to working with you.

We know that aside from the technology you will be supplying us, we will need your training to give our staff the skills to effectively operate, maintain and repair it.

To help you understand our training proposal requirements we are sending you:
• An overview of training requirements
• The training proposal format
• Basic training requirements
• Course overview information needed
• General proposal information
• A site information sheet for the location where the training will be conducted. This will help you in your preparation of the proposal.
• A Training and Documentation Spec Sheet

We would like your proposal submitted by…………………….
If you have any questions please don’t hesitate to contact……………………………

We look forward to hearing from you and reviewing your training proposal.

Best Regards,
Building Value through Our Training Partnership
Capital Project Training
... believes that a key to successful equipment start-ups is effective training. We both have the same goal — RELIABLE EQUIPMENT— and need to work together as partners to provide the solid foundation that effective training provides. To help you understand what our training requirements are, for this project, we are sending you these training proposal guidelines.

**Step 1: Training Proposal Format:**
The following information should be included on your training proposal: (You may need to do a Needs Assessment with us to provide this accurately; Attached is a basic site information sheet to get you started.)

- Project Training Scope
- Deliverables*
- Timeline
- Cost— Training hours plus Training Materials/Documents
- Training Contact Information

*Deliverables will include the actual training and any training materials/documentation required. To budget adequately we also need the information below.

**Step 2: Training Requirements**
To budget sufficient resources we need this additional information:

**COURSE OVERVIEWS,** for each job classification to be trained that includes: (ex, operators, mechanics, electricians, ETs, stationery engineers):

- target audience,
- time required for each course,
- number of participants that can attend,
- prerequisite skills required,
- topics to be covered (you may want to include an outline)
- trainee and class evaluation process
- Any special needs that you have to conduct the training
<table>
<thead>
<tr>
<th>Project Name:</th>
<th>Address:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Number:</td>
<td>Training Contact Phone:</td>
</tr>
<tr>
<td>Project Location:</td>
<td>Fax:</td>
</tr>
<tr>
<td>Project Manager:</td>
<td>Cell:</td>
</tr>
<tr>
<td>Training Contact:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Training Scope:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Training Deliverables:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Training Timeline</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Training:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Would you consider training at your site or during the FAT (Factory Acceptance Test)?</td>
</tr>
<tr>
<td>Are your trainers PMMI certified?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Training Cost</th>
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</table>

<table>
<thead>
<tr>
<th>Labor Hours for Training:</th>
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</table>

<table>
<thead>
<tr>
<th>Training Materials/Documentation Cost:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Travel &amp; Expenses:</th>
</tr>
</thead>
</table>
Course Overviews
Please complete a course overview for each job classification to be trained. You may also want to include a course outline. This will help us to budget our resources properly, as well as prepare our trainees if pre-training is required.

<table>
<thead>
<tr>
<th>Equipment Name</th>
<th>Course Overview</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Targeted Audience</td>
</tr>
<tr>
<td></td>
<td>Class Size:</td>
</tr>
<tr>
<td></td>
<td>Topics to be covered: (Add the course outline here)</td>
</tr>
</tbody>
</table>

Evaluation Procedures (Course and Individual Performance)

Requirements:

Prepared by: Date:

Revision Date:

5 Location/Date
**General Information to Vendors:**

**Vendor Training Proposals**

Your training proposals **must** contain the information requested.

- We know that you will base your bids on the best information you have at the time of our request. We encourage you to take the time to do a “needs assessment” with the appropriate training contact to ensure accuracy. The site information sheet should be a helpful start for you.

- We will give you a date that the proposal is due. If for any reason you are not able to meet that deadline we need to be notified as soon as possible. Your proposal will be important to our budgeting process. If amendments are required at a later date we will ask you to submit them in writing.

- All proposals should be on your company’s letterhead. Address the proposal to…………………..

- It’s not mandatory that you use the attached forms but you **MUST** include the required information in whatever form you use.

- Please include a current rate schedule with your quote to support the training cost you have listed. (DO NOT submit this schedule **without** a detailed cost estimate on your proposal. We expect you to put this together.)

- We believe effective training is essential to the success of the project. Evaluation is a key way to measure effectiveness.

- Safety **MUST** be a critical part of all training. The use of “harmonized” safety icons is encouraged/preferred. Include a page with all the icons and their definitions in the beginning of the book then use the icons throughout the book to reinforce safety.

- If you need any additional information to complete this please contact the Training Contact listed on the Site Information Sheet.
## Location

### Site Overview

<table>
<thead>
<tr>
<th>General Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project Name:</strong></td>
</tr>
<tr>
<td><strong>Project Manager:</strong></td>
</tr>
<tr>
<td><strong>Targeted Start-up Dates:</strong></td>
</tr>
<tr>
<td><strong>Training Contact:</strong></td>
</tr>
<tr>
<td><strong>Address:</strong></td>
</tr>
<tr>
<td><strong>Phone:</strong></td>
</tr>
<tr>
<td><strong>Cell phone:</strong></td>
</tr>
<tr>
<td><strong>Cell Phone:</strong></td>
</tr>
</tbody>
</table>

### Training Participant Numbers

<table>
<thead>
<tr>
<th>Job Classification</th>
<th>1st Shift</th>
<th>2nd Shift</th>
<th>3rd Shift</th>
<th>Educational level (approx)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operator</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mechanic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrician/ET</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stationery Engineer</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Supervisor or Internal Trainer</td>
<td></td>
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</tbody>
</table>

Additional Comments About Participants: (Language needs, past experience with this type of equipment, union issues, use of internal trainers, etc.)
Training Documentation Requested:

___ Training Manuals      Format: Electronic Platform
___ Job Aids               DVD
___ Troubleshooting Guides  CD ROM
___ Instructor's Manual

Special Needs:
Language Requirements -
Other:

Available Resources: (at this location)

___ Training Room      ___ Flip Charts
___ Data Projector/screen (markers, masking tape)
___ Pencils/paper      ___ VCR/TV
___ White/chalk board
___ Access to copy machine (if needed)
___ Access to equipment (MUST be prearranged)
___ Internal trainers

Other:

Partnership Responsibilities

We understand that to reach the full benefit from your training we need to work hand-in-hand with you. We’d like to establish the following with you to make that possible:

• Your expectations of .......
• .....’s expectations of you
• Joint responsibilities
• Targeted goals
• Methods of resolving issues that arise

.......s training resource will be in contact with you to discuss these.

We look forward to a productive training partnership and a successful start-up!

8

Location/Date
Training Partnership Agreement

This TRAINING PARTNERSHIP AGREEMENT is between
________________________________ (vendor) and________________________________ (customer)
for the success of project__________________________________________________________.

The purpose of this agreement is to:
  • Clarify our expectations of one another (yours, mine, ours)
  • Decide how we will resolve issues related to this partnership
  • Set mutual and measurable goals

**Customer Expectations:**

**Vendor Expectations:**

Together we will collaborate and be accountable for:

In the event that confusion arises over the above we will resolve it by:

Specific and measurable training goals we will commit to:

Together we have discussed and agreed to this partnership with the purpose of attaining the mutually identified training goals that support the success of the project.

__________________________________________________________ Customer Representative

__________________________________________________________ Vendor Representative

__________________________________________________________ Date
<table>
<thead>
<tr>
<th><strong>Integrator as a Training Partner</strong></th>
<th><strong>Questions to ask an Integrator about Training</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Planning Stage</strong></td>
<td></td>
</tr>
<tr>
<td>What type of integrator are you? Turnkey? Single Source? Extension?</td>
<td></td>
</tr>
<tr>
<td>Explain how you define that? (type of integrator)</td>
<td></td>
</tr>
<tr>
<td>Explain what role you will be assuming for the training.</td>
<td></td>
</tr>
<tr>
<td>What are your expectations of us?</td>
<td></td>
</tr>
<tr>
<td>Let’s discuss the partnership components so there are no misunderstandings.</td>
<td></td>
</tr>
<tr>
<td>What materials of ours would you like to see? Will you be developing any training materials? Will you need our assistance?</td>
<td></td>
</tr>
<tr>
<td>Will we be responsible for validating the documentation that you develop to ensure its accuracy? Will we get electronic copies?</td>
<td></td>
</tr>
<tr>
<td>Will you be doing the training “needs assessment”? Will you share that with us?</td>
<td></td>
</tr>
<tr>
<td>Will you develop the training proposal?</td>
<td></td>
</tr>
<tr>
<td>Will you use our course overviews and outlines?</td>
<td></td>
</tr>
<tr>
<td>Will you conduct a safety risk analysis then develop the training for it?</td>
<td></td>
</tr>
<tr>
<td>What are yours and your customer’s outcome expectations from the OEM equipment and training program?</td>
<td></td>
</tr>
<tr>
<td><strong>Installation &amp; Training Stage</strong></td>
<td></td>
</tr>
<tr>
<td>Will you be arranging the logistics?</td>
<td></td>
</tr>
<tr>
<td>Will you be setting up the training schedules?</td>
<td></td>
</tr>
<tr>
<td>Will you identify participants and make sure they are dedicated to training?</td>
<td></td>
</tr>
<tr>
<td>Will you assist with the training?</td>
<td></td>
</tr>
<tr>
<td>Will you attend all training?</td>
<td></td>
</tr>
<tr>
<td>Will you assist with the evaluations?</td>
<td></td>
</tr>
<tr>
<td>If there are any problems will you talk to management or will we do that? Do it together? Do we contact you or the customer directly?</td>
<td></td>
</tr>
<tr>
<td>Will you prepare the feedback sheets? Administer them? Share them?</td>
<td></td>
</tr>
<tr>
<td>Will you be responsible for the success of the training?</td>
<td></td>
</tr>
<tr>
<td><strong>Follow-Up</strong></td>
<td></td>
</tr>
<tr>
<td>Will you be checking up on the trainees to ensure they have learned?</td>
<td></td>
</tr>
<tr>
<td>Will you make the follow-up recommendations?</td>
<td></td>
</tr>
<tr>
<td>Will you do follow-up training or arrange for us to do it?</td>
<td></td>
</tr>
<tr>
<td>Will you provide a follow-up report to management? To us?</td>
<td></td>
</tr>
<tr>
<td>Will you be responsible for the mark-ups and updates of the training materials?</td>
<td></td>
</tr>
</tbody>
</table>
Training Grants

So where is the Money?

Federal, state and local governmental agencies are a valuable source for workplace training grants to help fund your projects. They usually fall under the category of economic development. States are always in competition for new industry as well as retaining their current tax base from industry – big or small! Providing grant money is one way they can do that.

Currently when companies are exploring new sites to start, or to expand their businesses, they frequently look at the educational resources and the geographic profiles that exist in that state or city. This tells them whether, if they were to build or relocate to this area, the education/skills would be available to satisfy their staffing needs. It would be a waste of time and resources to move to an area where they would have to train all the people from scratch. Because of this, states encourage continuous skill upgrading with incentives in the form of grants.

Training Grants are usually available for one or all of the following reasons:
• To attract new industry
• To upgrade the skill sets of a company so they can remain in business
• To help the expansion of a business
• To support a TIF* designated area
• To improve literacy skills

The logic is simple:
• New industry and business expansion brings in new jobs and new tax money – economic development!
• A company that must upgrade their skills to keep up with technology might have to close if there were no financial incentives available, meaning a loss of tax revenue.
• A TIF* area, by definition, is usually an area not conducive to growth. It may be deteriorating or have become an unattractive location for financial reasons (hard to attract workers, poor transportation cost, etc.). Being designated a TIF area brings the infusion of many incentives that will revitalize the area and the business – training dollars for skills upgrade is just one of those incentives.

TIF stands for TAX INCREMENT FINANCING program. It was developed to eliminate blighted conditions found to be present in some industrial, commercial and residential areas. The TIF program provides financial assistance to stimulate private investment in the area, to upgrade it, and attract new development. Not all cities and states have this but may have something similar.
Training Grants

Looking…in all the RIGHT Places

Since each state is different there isn’t just one contact, number, or website with this information. Here are some ideas to get you started.

Literacy Grants
These typically cover Adult Basic Education (ABE) classes and English as a Second Language (ESL) classes.
• Department of Education, Washington, D.C.
• State Department of Education
• Secretary of State’s Office
• Community Colleges

General Information about Literacy Grants
These grants usually are small ($1-15K) and, as most grant money, meant to be “seed money” to get a program started at your location. Federal grants are much harder to obtain, but have a higher dollar value. If you are a large company, with many field locations, it can improve your chances by applying jointly for federal funding. Likewise, if it is a state grant and all the locations reside in that state you have an advantage.

Economic Development Grants
These grants tend to be larger and cover companies’ growth needs, as mentioned on the previous page. Here are some of the most common names and organizations where these grants can be found.
• State/City Department of Economic Development
• Employers/Industrial Training Program
• Chamber of Commerce
• Small Business Administration
• National Alliance of Business
• Your Local Community College’s Business and Industry Department
• Workforce Investment Board

Additional Resources*
Although the above agencies will be your primary resources, you should also consider the many Employers Groups, professional organizations/associations and Not for Profit Community Based Organizations (CBO’s) who are highly skilled in providing customized training. Some recognized CBO’s that may be in your area are Jewish Vocational Services, Urban League, Catholic Charities to mention just a few. Even if they can’t help you, they can usually refer you to additional resources.

*In-depth grant information can be found in The Project Management Workbook; Field Proven Strategies for Managing Your Greatest Asset, by Nancy B. Cobb, McGraw-Hill, 2002.
## Pre-Session Checklist

Use this as a reminder to help you “Prepare”

<table>
<thead>
<tr>
<th><strong>Materials</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>___ Manuals</td>
</tr>
<tr>
<td>___ Job aids</td>
</tr>
<tr>
<td>___ Diagrams</td>
</tr>
<tr>
<td>___ Flip chart</td>
</tr>
<tr>
<td>___ Projector (overhead, data, video)</td>
</tr>
<tr>
<td>___ Markers</td>
</tr>
<tr>
<td>___ Masking tape</td>
</tr>
<tr>
<td>___ White board, markers for white board</td>
</tr>
<tr>
<td>___ Handouts</td>
</tr>
<tr>
<td>___ Evaluation forms</td>
</tr>
<tr>
<td>___ Pens, pencils</td>
</tr>
<tr>
<td>___ Other:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Man</strong> (You and participants)</th>
</tr>
</thead>
<tbody>
<tr>
<td>___ Facility scheduled (classroom, lab, etc.)</td>
</tr>
<tr>
<td>___ Classroom set up for participants</td>
</tr>
<tr>
<td>___ Refreshments scheduled (if having them)</td>
</tr>
<tr>
<td>___ You have your lesson plan and time allotments</td>
</tr>
<tr>
<td>___ Class rooster of participants</td>
</tr>
<tr>
<td>___ Name/number of internal contact person/s if needed</td>
</tr>
<tr>
<td>___ Access to the building to get to class/who to call when you arrive</td>
</tr>
<tr>
<td>___ Other:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Machines</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>___ Have you “tried out” your simulator (if being used)?</td>
</tr>
<tr>
<td>___ Do you know if there is power to the equipment?</td>
</tr>
<tr>
<td>___ Is the equipment/line/system available and scheduled for you?</td>
</tr>
<tr>
<td>___ What is your backup?</td>
</tr>
<tr>
<td>___ Other:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Methods</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>___ Do you have an instruction/lesson plan laid out</td>
</tr>
<tr>
<td>___ Do you have the tools and materials needed</td>
</tr>
<tr>
<td>___ Is your “hands-on” time allotment well scheduled</td>
</tr>
<tr>
<td>___ Do you have internal trainers to assist with demonstrations</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Measurement</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>___ Performance checks prepared and available</td>
</tr>
<tr>
<td>___ Class evaluations prepared and available</td>
</tr>
<tr>
<td>___ Other:</td>
</tr>
</tbody>
</table>

---

PMMI OTJ Training Workshop Template - 2008  
5.7.2008
**Follow-Up Training Plan**

Now that the formal training has been conducted these are the follow up recommendations to help achieve the skills needed:

<table>
<thead>
<tr>
<th>What</th>
<th>By When</th>
<th>By Whom</th>
<th>Targeted Goal</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
</tbody>
</table>
# Trainer Evaluation Form

<table>
<thead>
<tr>
<th>When you PREPARE to train do you?</th>
<th>Always</th>
<th>Frequently</th>
<th>Rarely</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Have a lesson plan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Break down the job into small “chunks”</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Have materials ready?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Arrange for the training area?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>When you PREPARE someone to learn something new do you?</th>
<th>Always</th>
<th>Frequently</th>
<th>Rarely</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Put him/her at ease?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Find out what is known?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Get their interest?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Place him/her correctly?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>When you PRESENT the procedures do you?</th>
<th>Always</th>
<th>Frequently</th>
<th>Rarely</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Tell?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Show?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Explain?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Demonstrate?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>When you have the trainee TRY OUT what has been learned, do you?</th>
<th>Always</th>
<th>Frequently</th>
<th>Rarely</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Have the trainee perform the steps?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Have the trainee explain the key points?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Offer constructive and positive feedback?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Explain over as needed?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Respond to and encourage questions?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Listen actively</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>When you FOLLOW UP to see if the job is being done properly, do you?</th>
<th>Always</th>
<th>Frequently</th>
<th>Rarely</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Have the learner work alone?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Encourage questions?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Give feedback?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Check frequently?</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>• Taper off?</td>
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</tr>
</tbody>
</table>
Try-Out
What is a positive way to respond to the trainee when he/she does the task wrong?

What is a positive thing you can say to encourage the trainee during this time?

How would you ask the trainee to “tell” you how to do the task before actually allowing them to do it? Why do you do this step, why not just let them do it?
Write a probing question that would help you know if the trainee understands the task.

Follow Up
What is a specific way of reinforcing that your trainee has done the task accurately? What might you say? Do?

What could you say to your trainee so they know where to go for help if you are not around?

Write a probing or open ended question you might use at this step.
4 Step Training Process Script

Before you do your training demonstration jot down some notes on this worksheet to help prepare you and to make sure you are including each step.

**Prepare:**
What are some things you can say and do to the trainee to relax them?
(Write an open ended question)

What might you ask to find out what they already know?
(Write a closed or probing question)

What are some small chunks you would divide your presentation into?

**Present:**
Describe the “big picture” (where this fits into their job, why it’s being done)

Describe how you would tell them what you are going to do today.

Write an open, closed ended and probing question that you could use during your presentation.

- Open
- Closed
- Probing
Weekly Schedule

The **weekly schedule** gives a good overview of who will be in training and what day it will take place. It could also list names for each group if duplicate training (usually to meet shift or group size requirements) is required.

<table>
<thead>
<tr>
<th>Monday</th>
<th>AM</th>
<th>Mechanics</th>
<th>Electrician/ET Engineers</th>
<th>HVAC</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td></td>
<td>PM</td>
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<tr>
<td>Tuesday</td>
<td>AM</td>
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<td>PM</td>
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<td>Wednesday</td>
<td>AM</td>
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<td>PM</td>
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<tr>
<td>Thursday</td>
<td>AM</td>
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<td>PM</td>
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<td>Friday</td>
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<tr>
<td></td>
<td>PM</td>
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</tbody>
</table>
The **daily schedule** gives much more detail; rooms, instructors, and times. Both the daily and weekly schedules are important and should be sent out together. If it’s a large project it’s good to have a shared folder on the computer set up for anyone to check this information as well as any other project information. These schedules are subject to change so you must constantly keep them updated. **Always** put the revision date/time on the schedules so people don’t get confused.

### DAILY SCHEDULE

<table>
<thead>
<tr>
<th>Time</th>
<th>Operators</th>
<th>Mechanics</th>
<th>Electricians</th>
<th>HVAC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Supervisors</td>
<td></td>
<td></td>
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<tr>
<td>6:45 – 8:45 AM</td>
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</tr>
<tr>
<td></td>
<td>Break</td>
<td></td>
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<tr>
<td>9:00 – 11:00 AM</td>
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<tr>
<td></td>
<td>Lunch</td>
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<tr>
<td>11:45 – 1:45 PM</td>
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<tr>
<td>2:00 – 3:00 PM</td>
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</tr>
</tbody>
</table>
Course Overview

Course:

Target Audience:  Time:

Size of Group:  Prerequisite Skills:

Topics to Be Covered:

Evaluation Procedure:

Requirements:

Prepared by: __________________________   Date: ___________  Revision Date: ______________
Training Content Matrix

Check each box that reflects the training content for each job classification.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Operator</th>
<th>Mechanic</th>
<th>Electrician</th>
<th>Electronic Technician</th>
<th>Stationery Engineer</th>
<th>Supervision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systems Overview</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Safety</td>
<td></td>
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</tr>
<tr>
<td>Tools, Parts &amp; Equipment</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Installation</td>
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</tr>
<tr>
<td>Start-Up</td>
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<td></td>
</tr>
<tr>
<td>Operating Procedures</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shut Down</td>
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</tr>
<tr>
<td>Troubleshooting</td>
<td></td>
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</tr>
<tr>
<td>Repair &amp; Maintenance</td>
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<tr>
<td>Preventative Maintenance</td>
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<tr>
<td>Changeover Procedures</td>
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<tr>
<td>Lubrication</td>
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<tr>
<td>Electronic Calibration &amp; Testing</td>
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<tr>
<td>Electronic Troubleshooting</td>
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<tr>
<td>PLC Architecture &amp; Strategy</td>
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<tr>
<td>PLC Component Troubleshooting</td>
<td></td>
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</tr>
<tr>
<td>Basic Robotic Theory</td>
<td></td>
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</tbody>
</table>

Training Time (Class Size)

<table>
<thead>
<tr>
<th>Classification</th>
<th>Class Time</th>
<th>No. to be trained</th>
<th>No. per Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operators</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mechanics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electricians</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# LESSON PLAN

<table>
<thead>
<tr>
<th>COURSE NAME:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Materials Needed:</th>
<th>Time:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Objectives:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enabling:</td>
</tr>
<tr>
<td>Terminal:</td>
</tr>
</tbody>
</table>

## Course Outline

1. Introduction (add time for each row)

2. 

3. 

4. 

5. 

6. **Follow Up**
   a) Internal Resources
   b) External Resources

Prepared by:

Date: Revision Date:
Job Breakdown

A **job breakdown** is a detailed list of the steps it takes to complete a **task**. It includes not only the steps but the "helpful hints" that make it understandable to the new trainee.

<table>
<thead>
<tr>
<th>STEPS</th>
<th>HELPFUL HINTS</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

Prepared by: _________________ Date: _______ Revision Date: _______
Checklist

Now that you have a job breakdown prepared you may want to make it into a quick checklist as a reminder to the learner who no longer needs the hints portion of the job breakdown. That’s easy; just use what is on the “steps” side of the job breakdown.

<table>
<thead>
<tr>
<th>TASK:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>TASK CHECKLIST:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steps of the Task</td>
</tr>
</tbody>
</table>

Prepared by: ___________________  Date: _________  Revision Date: _________
# Performance Check 2.1

Name of Trainee ____________________________ Date ____________________

<table>
<thead>
<tr>
<th>PERFORMANCE CHECK TASK:</th>
<th>Level of Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 2 3</td>
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</tbody>
</table>

1 = Unable to perform this step  
2 = Needs additional coaching/training on this step  
3 = Can perform this step independently  

**Comments:**

**Signatures:**  
The following signatures indicate that this task has been performed accurately and independently and no additional training is required.

_____________________________ Trainer ________ Date  
_____________________________ Trainer ________ Date  
_____________________________ Supervisor ________ Date
Troubleshooting Guide

<table>
<thead>
<tr>
<th>Equipment/Process:</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>POSSIBLE CAUSES</th>
<th>POSSIBLE SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

Prepared by: ___________________  Date: _________  Revision Date: _________

PMMI OTJ Training Workshop Template - 2008
5.7.2008
# Training Evaluation Form

<table>
<thead>
<tr>
<th>Class:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trainer:</td>
<td>Time:</td>
</tr>
</tbody>
</table>

After each class we like to get your feedback. This helps us to know what worked well for you and what we could do differently to improve future sessions. Please be honest with your answers. **Thank you for your time!**

1. Thinking back on this training experience, what made it *useful/helpful* for you? What helped you learn?

2. On the other side, what about this learning experience was *not* helpful? What would you do differently?

3. What **additional training** or **support** do you need to be able to operate, maintain or repair this equipment by yourself?

Please rate the following on a scale of 1 to 5 (5 being the best)

- The training objectives were clear
- The trainer was prepared
- The materials and classroom were ready for class
- The materials were clear and useful
- The instructor was patient and helpful
- The trainer listened to participants openly
- The trainer answered questions asked
- The trainer allowed time for each person to “try-out” the task being taught
- The trainer encouraged questions/participation
- The trainer was respectful of participants
- You left the class feeling you could now do the task on your own
- If you need more help you know where to go for it

### Rating Scale

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>The training objectives were clear</td>
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<tr>
<td>The trainer was prepared</td>
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<tr>
<td>The materials and classroom were ready for class</td>
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<tr>
<td>The materials were clear and useful</td>
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<tr>
<td>The instructor was patient and helpful</td>
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<tr>
<td>The trainer answered questions asked</td>
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<tr>
<td>The trainer allowed time for each person to “try-out” the task being taught</td>
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<tr>
<td>The trainer encouraged questions/participation</td>
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<tr>
<td>The trainer was respectful of participants</td>
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<tr>
<td>You left the class feeling you could now do the task on your own</td>
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<tr>
<td>If you need more help you know where to go for it</td>
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</tbody>
</table>
## Training Sign-In Sheet

 Trainer: | Date:  
 Company: | Time:  
 Equipment:  
 Participants: (Circle) Operators  Mechanics  Electricians  Supervisors  Other:  

<table>
<thead>
<tr>
<th>Name</th>
<th>Job Title</th>
<th>Shift</th>
<th>Training Completed</th>
<th>Training NOT completed</th>
<th>Training Comments</th>
</tr>
</thead>
<tbody>
<tr>
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</table>

### Training Follow-Up Recommendations:

PMMI OTJ Training Workshop Template - 2008
5.7.2008
1. PURPOSE
   1.1 The purpose of this SOP is to provide instructions for changeover of the Super-Duper Monster Maker Machine.

2. GENERAL INFORMATION
   2.1 Scope
       2.1.1 This SOP covers only the Super Duper Monster Maker Machine used in the Achieving Lean Changeover workshop.
   2.2 Safety
       2.2.1 All normal safety precautions are to be observed.
   2.3 Responsibility
       2.3.1 This changeover will normally be performed by operators.

3. MATERIALS
   3.1 Materials required are the upper and lower mold halves and bases for the succeeding monster. These should be assembled and staged beside the machine prior to finishing the previous monster production run.
       3.1.1 Assure that the mold assembly is staged with the side marked “TOP” up and “FRONT” toward the operator.

4. TOOLS
   4.1 No tools required

5. DEFINITIONS
   5.1 See picture for machine terminology.

6. CHANGEOVER PROCEDURE
6.1 Move the operating lever to the left, against the vertical post.
6.2 Unplug control wires (2 pair) located at the left front of the machine.
6.3 Remove the upper mold assembly of the current product.
   6.3.1 With the machine in the open position, reach in through the front of
   the machine with one hand to support the upper mold half.
   6.3.2 Unscrew the hand knob on the top of the machine. Leave the
   handknob in place.
   6.3.3 Remove the upper assembly through the front of the machine.
   6.3.4 Set the assembly mold side up to the side of the machine.
6.4 Remove the lower mold assembly
   6.4.1 Open the two toggle clamps holding the lower assembly.
   6.4.2 Lift the lower mold assembly up and slide out the front of the
   machine.
   6.4.3 Set the lower assembly, mold side up, next to the upper assembly.
6.5 Mount the upper and lower mold assemblies for the new product
   6.5.1 With the two halves of the mold assembled, assure that the base
   marked “TOP” is up and the arrow marked “FRONT” is toward the
   operator.
   6.5.2 Slide the assembled upper and lower assemblies into the machine
   from the front.
   6.5.3 Assure that the lower mold assembly is seated flat against the
   bolster
6.6 Close the two toggle clamps holding the lower mold assembly in
   place. Be sure that they snap into the locked position.
6.7 Fasten the upper mold half
   6.7.1 With the upper mold assembly assembled to the lower mold half,
   push the upper bolster down until it is flush with the upper mold
   plate.
   6.7.2 Tighten the handknob. Note that the handknob has lateral play in all
   directions. This is intentional to allow alignment of the upper mold
   half with the lower mold half.
   6.7.3 Release the upper bolster and allow it to rise to its fully open
   position.
6.8 Connect the control cables red to red and black to black.
6.9 Move the operating lever over the handknob
6.10 The machine is now ready to make monsters.

7. DOCUMENTATION
7.1 None

8. ATTACHMENTS
8.1 None

9. REFERENCES
9.1 None

10. CHECKLIST

THIS CHECKLIST PROVIDES AN OVERVIEW OF MAJOR STEPS IN THE CHANGEOVER OF THE SUPER-DUPER MONSTER MAKER MACHINE. CHECKLIST ITEM AND PAGE NUMBERS REFER TO THE MAIN BODY OF THE SOP.

6. CHANGEOVER PROCEDURE .........................................................................................................................1
6.1 MOVE THE OPERATING LEVER TO THE LEFT, AGAINST THE VERTICAL POST...........................................2
6.2 UNPLUG CONTROL WIRES (2 PAIR) LOCATED AT THE LEFT FRONT OF THE MACHINE ..............................2
6.3 REMOVE THE UPPER MOLD ASSEMBLY OF THE CURRENT PRODUCT. .....................................................2
6.4 REMOVE THE LOWER MOLD ASSEMBLY .................................................................................................2
6.5 MOUNT THE UPPER AND LOWER MOLD ASSEMBLIES FOR THE NEW PRODUCT ..............................2
6.6 CLOSE THE TWO TOGGLE CLAMPS HOLDING THE LOWER MOLD ASSEMBLY IN PLACE. BE SURE THAT THEY SNAP INTO THE LOCKED POSITION.................................................................2
6.7 FASTEN THE UPPER MOLD HALF .........................................................................................................2
6.8 CONNECT THE CONTROL CABLES RED TO RED AND BLACK TO BLACK ..............................................2
6.9 MOVE THE OPERATING LEVER OVER THE HANDKNOB ............................................................................3
6.10 THE MACHINE IS NOW READY TO MAKE MONSTERS. ...........................................................................3
Root Cause Analysis

<table>
<thead>
<tr>
<th>Key Reasons</th>
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<tbody>
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<td>Why?</td>
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<td>Why?</td>
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<td>Why?</td>
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</tbody>
</table>

5 WHY’S ANALYSIS for:
## Training and Learning Gap Worksheet

<table>
<thead>
<tr>
<th>Goal/Follow-Up Recommendations</th>
<th>Estimated Achievement Level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(0=Unable to conduct, 5=Met Goal)</td>
</tr>
<tr>
<td>Learning Goal #1</td>
<td></td>
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<tr>
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<td>0  1  2  3  4  5</td>
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<tr>
<td>Recommended Follow Up to Achieve Goal:</td>
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<tr>
<td>Learning Goal #2</td>
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<td>0  1  2  3  4  5</td>
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<tr>
<td>Recommended Follow Up:</td>
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<tr>
<td>Learning Goal #3</td>
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<td>0  1  2  3  4  5</td>
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<tr>
<td>Recommended Follow Up:</td>
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<tr>
<td>Learning Goal #4</td>
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<td>0  1  2  3  4  5</td>
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<tr>
<td>Recommended Follow Up:</td>
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<td>Learning Goal #5</td>
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<td>0  1  2  3  4  5</td>
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<tr>
<td>Recommended Follow Up:</td>
<td></td>
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</table>
# Follow-Up Plan

<table>
<thead>
<tr>
<th>Project:</th>
<th>Date:</th>
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</thead>
<tbody>
<tr>
<td>Training Coordinator: (name/phone)</td>
<td>Vendor Contact (name/phone)</td>
</tr>
<tr>
<td>Supervisor:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Area for Follow Up</th>
<th>By Who</th>
<th>By When</th>
<th>Recommendation for Follow Up</th>
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</thead>
<tbody>
<tr>
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Prepared by: ___________________ Date: _________ Revision Date: _________
Company Training Checklist

Having the BEST training for your customers

Now that we’ve talked about what **CAN** be done, spend a few minutes to identify what things you’d like to improve or add to your company’s training resources.

<table>
<thead>
<tr>
<th>Recommendations to take Back to Your Company</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Area to Add/Improve</strong></td>
</tr>
<tr>
<td><strong>Develop, utilize and/or improve</strong></td>
</tr>
<tr>
<td>Training and Documentation Overview Brochure</td>
</tr>
<tr>
<td>Cost of Equipment Reliability Worksheet to show or use with customers</td>
</tr>
<tr>
<td>Training Participants Profile Worksheet</td>
</tr>
<tr>
<td>Training Needs Analysis</td>
</tr>
<tr>
<td>Partnership Agreement</td>
</tr>
<tr>
<td>Training Plan</td>
</tr>
<tr>
<td>Training Outlines</td>
</tr>
<tr>
<td>Training Contents Matrix</td>
</tr>
<tr>
<td>Lesson Plans</td>
</tr>
<tr>
<td>Weekly/Daily Training Schedules</td>
</tr>
<tr>
<td>Job Performance Aids</td>
</tr>
<tr>
<td>Job Breakdowns</td>
</tr>
<tr>
<td>Checklist</td>
</tr>
<tr>
<td>Performance Checks</td>
</tr>
<tr>
<td>Troubleshooting Guides</td>
</tr>
<tr>
<td>Class Evaluation &amp; Feedback Forms</td>
</tr>
<tr>
<td>Trainers Checklist</td>
</tr>
<tr>
<td>Training Follow Up Plan</td>
</tr>
<tr>
<td>Self Evaluation Worksheet</td>
</tr>
<tr>
<td>Training &amp; Learning Gap Worksheet</td>
</tr>
<tr>
<td>Training Grant Info (for customers)</td>
</tr>
<tr>
<td>Other:</td>
</tr>
</tbody>
</table>

PMMI OTJ Training Workshop Template - 2008
5.7.2008
**Personal Checklist - Self Reflection**

The Best of “what is” when I train;
Based on the feedback I received in this workshop from my peers, as well as feedback I’ve received in the past these are the things I do best when it comes to training for customers.

This is what I do best.........

<table>
<thead>
<tr>
<th>I personally want to develop/enhance these skills</th>
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</thead>
<tbody>
<tr>
<td>Listening</td>
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<tr>
<td>Developing course outlines</td>
</tr>
<tr>
<td>Allowing trainees more time to try task out</td>
</tr>
<tr>
<td>Providing feedback</td>
</tr>
<tr>
<td>Requesting feedback</td>
</tr>
<tr>
<td>Demonstrating more clearly</td>
</tr>
<tr>
<td>Asking more and better questions</td>
</tr>
<tr>
<td>Preparing trainees for learning</td>
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<tr>
<td>Preparing partnership agreements</td>
</tr>
<tr>
<td>Other:</td>
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</table>
# End-User’s Technical Training Self Audit

**End-User’s Technical Training Self Audit**

Take a few minutes to see how your training measures up to “Best Practices” in the industry.

Check off all that you have and put your total points for each section on the far left. Add up your total points for all three sections for your total. Compare yourself to “Best Practices” in the industry.

<table>
<thead>
<tr>
<th>Points</th>
<th>Topic</th>
<th>Content (add up the points listed for each item you check off)</th>
</tr>
</thead>
</table>
|        | Planning | - You have training and training documentation specs identified and in writing. (4)  
- You have a formal Request for Proposal (RFP) that you send to your training providers (equipment and/or suppliers) (5)  
- You have talked to the OEM and scheduled safety training prior to entering the plant. (4)  
- You provide your equipment supplier (OEM) with background information about the location that the training is going to be at. (3)  
- You participate in their training “needs assessment” so they can customize their training to meet your needs. (5)  
- You share your expectations with your OEM and set measurable training goals. (5)  
- You have a designated training coordinator who understands training (5)  
- You just ask the OEM if they provide training and expect that it will be delivered prior to start-up. (-2)  
- You have training designated as a line item in your budget rather than in a general category like “service”. (3) |
|        | Installation & Training | - You have internal trainers that can assist with the training (they may be a lead person, a formal trainer and/or an SME with good training skills that you use as trainers when needed). (10)  
- You have consistent sign-in sheets that show how long each trainee was able to stay in the training session. (3)  
- You have consistent feedback sheets for all training (3)  
- You ensure that a classroom is available for training with all the requested materials. (4)  
- You ensure that the equipment will be available for training as requested. (8)  
- You work together with the OEM to develop an effective schedule (4)  
- You work together with the OEM on evaluations (4)  
- You abide by the expectations committed to (5)  
- You send only appropriate trainees to class (5)  
- You don’t pull out trainees form formal training (5) |
|        | Follow-Up | - You have a discussion with the OEM trainer once the training is completed (5)  
- You develop a follow-up plan (5)  
- You provide OEM with feedback. (5) |

How do you compare to “Best Practices” in the industry?

- 75 – 100 – You ARE considered “best Practice” in the industry – Congratulations! You probably have a very good partnership with your OEMs.
- 50 – 75 – You are using many good training tools but still have room to improve
- 25 – 50 – You’ve just scratched the surface on using effective training practices
- 0 – 25 – Yikes, we can safely say you probably have and repeat service calls because your people don’t know how to operate and/or repair your equipment. You have a lot of room to improve.
Equipment Manufacturers Training
Self-Audit

Take a few minutes to see how your training measures up to “Best Practices” in the industry. Check off all that you have and put your total points for each section on the far left. Add up your total points for all three sections. Now, compare your self to “Best Practices” in the industry.

<table>
<thead>
<tr>
<th>Points</th>
<th>Topic</th>
<th>Content (add up the points listed for each item you check off)</th>
</tr>
</thead>
</table>
|        | Planning | o We have a training brochure to explain our training services (5 points)  
|        |         | o We prepare formal training proposals (5)  
|        |         | o We conduct a “needs assessment” with customers (5)  
|        |         | o We have course outlines/overviews for each course we offer (5)  
|        |         | o You have identified what safety requirements your end-user has prior to entering the plant as well as safety for the training itself. (5)  
|        |         | o We merely send out a service tech who does informal OJT as needed (2)  
|        |         | o We have training manuals for each group to be trained (3)  
|        |         | o We have a designated training coordinator for all our training (5)  
|        |         | o We discuss training informally with the customer and let the service tech train informally when he finished installing if there is time (1)  
|        |         | o You share your expectations with your end-user and set measurable training goals (5).  |
|        | Installation & Training | o We have dedicated trainers who have both service tech experience and training skills (5)  
|        |         | o We use PMMI (or other training certification) certified trainers (5)  
|        |         | o Our service tech who is installing also trains (2)  
|        |         | o We work with their internal trainers. (4)  
|        |         | o We have specific objectives and training agendas for each work group to be trained (ex. Operators, mechanics, etc) (5)  
|        |         | o We have specific training manuals, materials for each group to be trained. (5)  
|        |         | o We provide feedback sheets at the end of training. (3)  
|        |         | o We expect trainees to demonstrate their ability to do the tasks taught during the training to assess their skill level. (10)  |
|        | Follow Up | o We provide customers with a copy of the feedback sheets (3)  
|        |         | o We provide specific feedback on how the trainees demonstrated during their performance checks (10)  
|        |         | o We provide recommendations for “next steps” to reinforce the learning or recommend what additional training would be needed. (7)  |

**Total Score**

How do you compare to “Best Practices” in the industry
- 75 – 100 – You ARE considered “best Practice” in the industry – Congratulations! You must have a very good partnership with your customers.
- 50 – 75 – You are using many good training tools but still have room to improve
- 25 – 50 – You’ve just scratched the surface on using effective training practices
- 0 – 25 – Yikes, we can safely say you probably have excessive service calls from customers who don’t know how to operate and/or repair your equipment. You have a lot of room to improve.
# Job Safety Analysis

## Job Task:

<table>
<thead>
<tr>
<th>Steps</th>
<th>Hazard</th>
<th>Severity*</th>
<th>Possible Risk Reduction Methods</th>
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<tbody>
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*Severity Levels: Refer to definitions below*

Prepared By________________________________________________________

Date__________________________________ Revision Date________________

<table>
<thead>
<tr>
<th>Severity</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
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# Job Safety Analysis

## Job Task: Changing a Plugged Hot Melt Glue Nozzle

<table>
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<tr>
<th>Steps</th>
<th>Hazard</th>
<th>Severity*</th>
<th>Possible Risk Reduction Methods</th>
</tr>
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<tr>
<td>Assess the gun</td>
<td>Unintended startup or machine movement which could cause personal hardship such as cuts, burns etc.</td>
<td>Critical to Marginal</td>
<td>Stop the machine&lt;br&gt;Activate the e-stop&lt;br&gt;Open interlocking guard&lt;br&gt;Lockout, tag out (LOTO)</td>
</tr>
<tr>
<td>Change the glue nozzle</td>
<td>Burns from the contact with the hot melt glue caused by activation or contact with the glue gun</td>
<td>Critical to Marginal</td>
<td>Perform LOTO on the pneumatic supply&lt;br&gt;Automatically turn off the air and dump (exhaust) the system pressure&lt;br&gt;Wear proper PPE – gloves, face shield</td>
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*Severity Levels: Refer to definitions below*

Prepared By________________________________________________________

Date__________________________ Revision Date____________________

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