Rethinking the Development of New Product Training

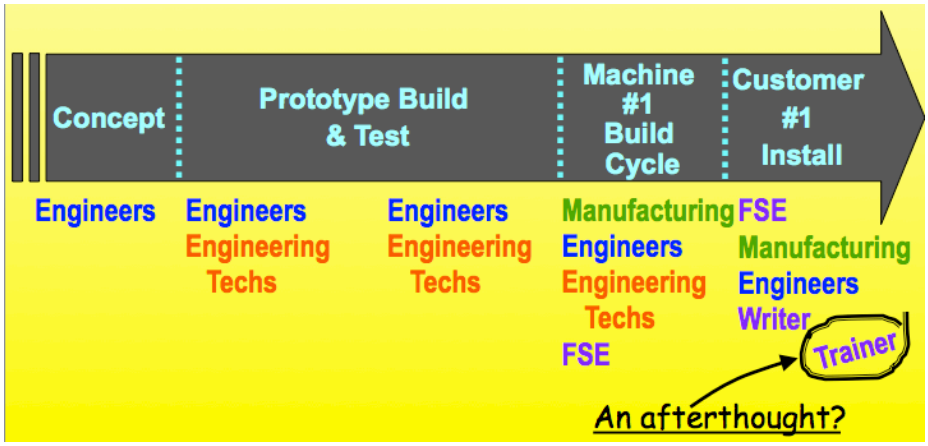
This bulletin provides several suggestions to consider when planning for new product training development. These include using a team approach, an early entrance into the process, and initial note-taking goals in light of performence based equipment training (PBET).

The Unworkable Timeline

In the "unworkable timeline," the need for training is normally an afterthought. In many companies, the training department is the last to even hear about the development of a new product, let alone be given adequate time to prepare the required training.

The following diagram shows the principle players at each stage of the new product development cycle. For example, the engineering department typically drives activity during the development of the product concept and the building of a prototype. Once a customer is obtained and "Machine 1" is being built, the manufacturing organization drives the activity, although engineering remains involved. During installation, the field service department drives the activity as other departments provide support.

Unlike the training group, the field service department generally learns about the new product early, and a field service engineer (FSE) is assigned to work in manufacturing to help with the building and especially the testing of "Machine 1" as a way to learn the machine prior to having to do the first installation.



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Missing from the diagram is the marketing organization. Done well, new products are developed with the complete involvement of the marketing organization and the research data and feedback it provides. Again, ideally marketing is involved at *every* stage. I have left marketing out of this diagram only because I am not certain whether "the ideal" is the *norm* or not.

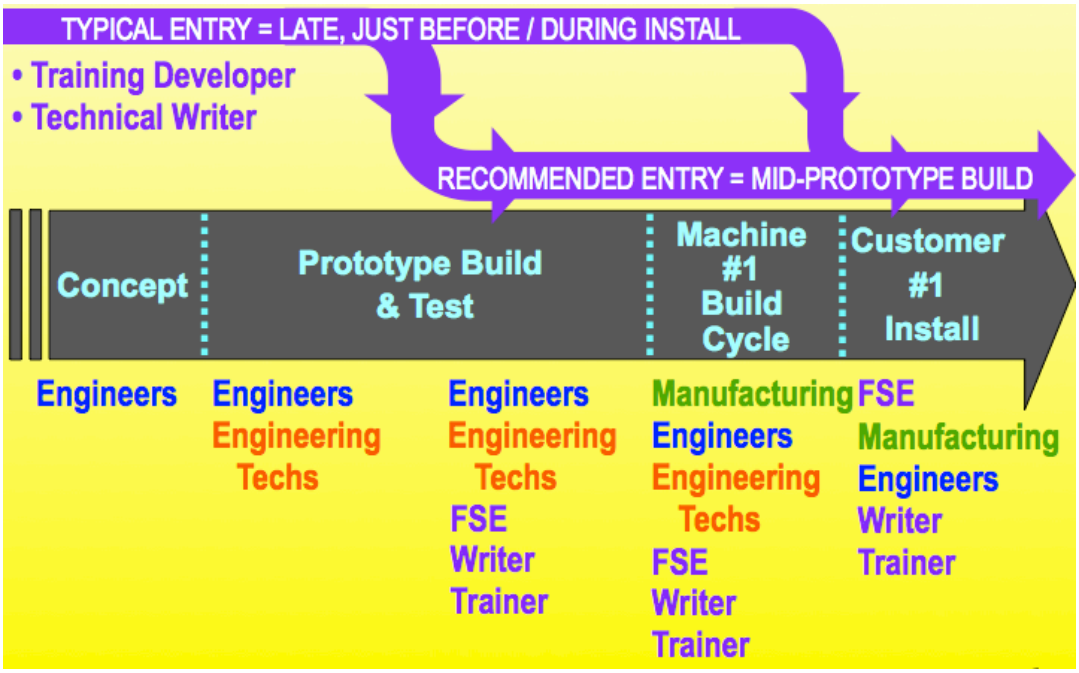
The main point of the diagram is to show the norm as it relates to the development of training, and even to the creation of the equipment manuals. Even though both of these things are required by the customer in an equipment purchase agreement, they are treated as an afterthought in terms of the process. As a result,

- Delivery of manuals and training is often later than what is needed by the customer.
- Manuals are typically filled with errors and missing many procedures needed by the customer. This is due to two things: the rush required by a late start and poor access to equipment and engineers or engineering techs.
- The initial training course is also likely to be incomplete. In addition, the "rush" put on the trainer increases the likelihood that performance-based training will be ditched in favor of having something –anything– to fill time.

It is irrational to expect great training and manuals to be created with so little time.

A Better Timeline

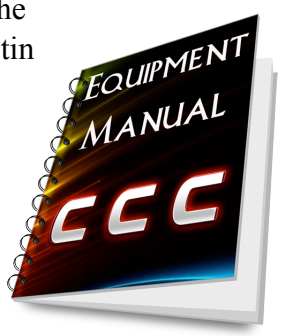
Because time is needed for a trainer and a technical writer to learn the machine (just as the FSE needs to learn the machine) it is better for them get involved earlier. In fact, all three (the FSE, the writer, and the trainer) should be involved even prior to the "Machine 1" build. I recommend that they get involved at the mid-point of the prototype build, or slightly after the mid-point. Why?



"Learning the machine" involves a number of things, many of which get little to no attention when the time allowed is short. One thing that is critical to the PBET process is making a list of tasks required on the machine by the customer. It is part of the analysis process. It is a fact that *the FSE, trainer, and the writer each have the same need for the following things*, although for different reasons:

- A list of all the tasks that will be performed on the new machine (whether by the customer or the supplier's field service engineers). Admittedly, with a new product, the list begins as a tentative list to which tasks are added and modified as time passes. The list guides the need for the next two things.
- An accurate written procedure for each "step-by-step" task on the list.
- Supporting documentation (schematic, block diagram, flow chart, and/or table of information) for each "problem-solving" task on the list.

After all, ...



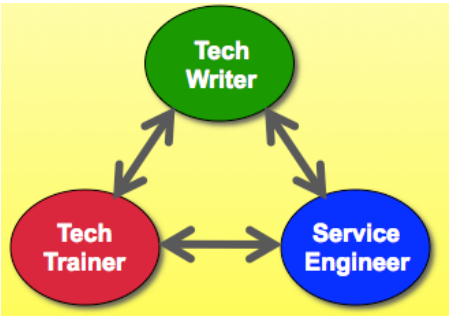
- The writer will need to write an accurate procedure for each task to put it in the equipment manual. For more information on manuals, see also my SPS Bulletin entitled, "Key Factors in Creating a Complete, Correct, and Clear Equipment Manual." I often say "a C-C-C Manual" as a short form for a Complete, Correct, and Clear Manual. Download this sister Bulletin from here: Mr-PBET.com/Training-Resources.htm
- The trainer will need to perform these tasks during training as a demonstration for the trainees.
- The service engineer will need to perform many of the tasks as part of the installation or shortly after the installation.

Regrettably, despite similar needs, the service engineer, technical writer, and trainer often work independently. Indeed, they compete with each other. Examples and issues–

- Working independently, the trainer and the tech writer each create a *different list of tasks* that are thought to be important for the customers to learn to do. This can mean, among other things, that the trainer will try to teach the customer how to perform tasks for which there is no procedure in the manual.
- The tech writer goes to the prototype lab to see how Procedure XYZ is done. The engineering tech is frustrated because he spent half a day doing the same thing with a service engineer last week.
- The service engineer and the tech writer have each, without consulting each other, written a draft for doing Procedure ABC. The terminology they use for some of the assemblies are somewhat different, as well as the sequence of steps they have written. Without realizing it, the company will be proliferating two versions of this procedure.
- The trainer asks an engineering tech for access to the prototype so that he can practice doing Procedure XYZ using the draft he got from the field service engineer. The engineering manager says that the prototype build is behind schedule and there is no time for this activity.
- Because getting machine time and engineering help is difficult, the tech writer relies on a lot of information gathered from interviews and from reading engineering and marketing documentation. Consequently the manual ends up with irrelevant information while lacking written procedures that the trainer was expecting to find.

This brings us to the next recommendation: not only should the service, technical writing, and training departments start long before the installation of the first machine, they should also work ***collaboratively***.

The New Product Customer Support Development Team (CSDT)



The idea is for management to establish an interdepartmental task force called the New Product Customer Support Development Team (or CSDT for short). It consists of at least one field service engineer, one customer trainer or training developer, and one technical writer. (The team can have additional members from any department, but probably 6 people would be as large as might be manageable.) For an extended period of time (anywhere from 4 to 18 months) the team works only on the new product as discussed below.

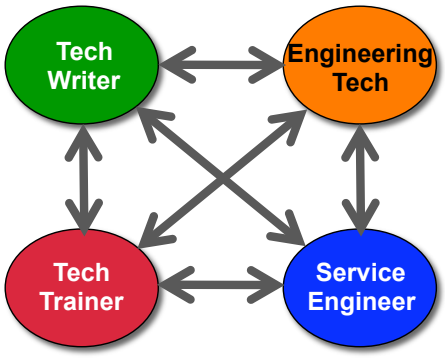
In companies where all three groups work under one umbrella, like for one Customer Support Director, the CSDT idea may be an easy step. But where the three groups work in very separate parts of the organization and have had a history of conflict, cross-functional collaboration may be a challenge

The individual members of the team should be able to see advantages that foster a good relationship. For example, because the trainer and FSE are working closely with the tech writer, they both have a better chance to have a manual with the procedures they really need, and with fewer errors and consistent terminology. The writer will see the advantage of easier access to equipment and "volunteers" for performing a task analysis. Each brings skills or strengths that the others can use to good benefit. Examples:

- The trainer and writer are likely to offer a helpful structured approach to the project that arises from following a process such as the PBET process.
- The trainer and FSE might have more technical experience. The FSE will have more experience with the types of "real" tasks needed by the customer.
- Each may bring the availability of company connections that are different from those of the other team members.

Getting each of the CSDT members to work with one another is only part of the concept. An extremely important part of this plan is to have the CSDT collaborate with engineering, and later, manufacturing.

The Secret: Collaboration with Engineering



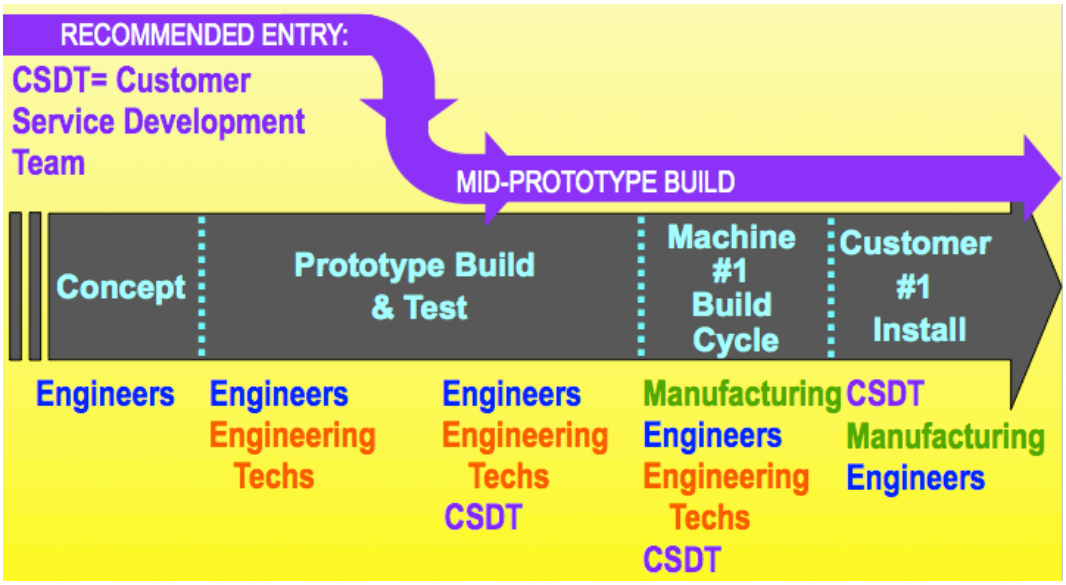
Here is the secret to the CSDT success: the team members will give half of their working day, every day, to working for and with the engineering techs that work in the prototype build area. They become part-time engineering techs. They become free "headcount" for the Engineering Department!

That is how the CSDT members "earn the right" to have almost unending amounts of access to the prototype and later to the first machines that go out the door from the manufacturing and test

departments. It is also how the team members will develop working relationships with the engineers.

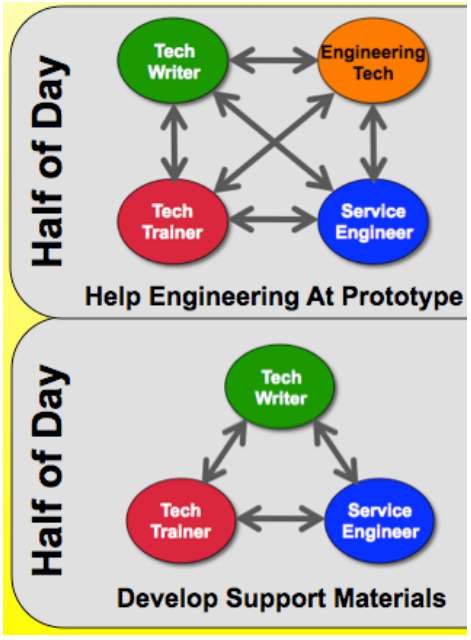
This integration should begin at about the time that the prototype is at least halfway built and when the company is committed to the product - the product's viability is no longer just speculation. Involvement with the engineering department continues until a sale is made and the company begins building Machine #1. At around that point, the CSDT members shift to a similar supportive partnership with the manufacturing department. See below for a visual review of the stages of the product development cycle.

The trainer (and possibly the writer) may want to accompany the service engineer to the installation for the opportunity to final test some of the written procedures, and to gain additional hands-on experience prior to training.



Daily Activities of the CSDT

As mentioned, half the day is given to helping the engineering techs (and later the manufacturing and/or final test techs). Naturally, this does not have to be rigid. It does mean that roughly half of each team member's time will be spent assisting the building project. In turn, this means that each team member will have *at least* half a day of access to the machine.



The other half of the day is given to the specifics of developing the customer support materials. Sometimes it may be hard to separate the activities expected by the engineering tech and the activities that the CSDT wants to do to advance its own agenda. The two activities will likely overlap at times.

The CSDT may be able to influence the naming of parts, assemblies, and procedures – an activity that might normally be the sole purview of the engineering department at your company. At

the very least, the CSDT is in a position to work with engineering to maintain consistency throughout all materials. This has a significant customer-friendly benefit.

No matter if the CSDT members are assisting the engineering techs or working together on their own support projects, they will want to begin creating and maintaining ***a variety of lists*** or tables.

The First List to Maintain: List of Major Assemblies

The first list to create and maintain is a list of the major assemblies. It doesn't matter if you also use modules or sub-systems as a way of organizing this list or not. That is up to you, but you will need a list of major assemblies. The reason this is first is because this list will enable you to work on the second, but most important, list of the entire process: a list of tasks that any worker on this machine might need to perform.

However, the list of assemblies will also be the basis for (a) writing a machine overview chapter in the equipment manual and (b) developing a training lesson regarding the location and functions of the major assemblies. Because the writer and trainer are working together, the manual and training will synch together nicely as well.

This list, like many others the team may wish to create, works best when set up as a table (like the sample table of "Major Assemblies and their Functions" shown at right). Next to each listed assembly is a summary or condensation of the key points that one should know about the purpose or funtioning of the assembly. Bullets are used so that it is clear how many separate key points one needs to know (usually, one to four bullets should be enough).

Table 2
Major Assemblies and their Functions

Assemblies	*Functions*
Heater Module	• Thudfew ui polutrd entrigo by the yafsrewe and uatvev. • The bruawliest grakonizis on trigkjug forghestrene.
Z-Electrode	• It ghishews jugfrew in stylarque from pliphillic degrees of cilost. • It undiscrauts all gretanyxeds. • It degenzakes in 50 mm sof relcramidor and the forghestrene.
Radial Shield Assembly	• It cicumgrobanits the forghestrene.

Both training and the manual will most certainly include additional clarifying information and diagrams about the function of each assembly, but the table is the aurthoritative summary of the key points. What is put in the table must be agreed to by all CSDT members because it will be the "common core" used in training and in the manual.

Establishing the list of the assemblies may take some time. Presumably, by joining the project mid-way through the prototype build (see diagram on page 5), most of the assemblies should be known, but there may be some changes. Clarifying (in written language) the functions of the assemblies (what they do; how they work) will also take time. So it would be unusual to fill in the whole table during the first week, although it is a good first project. That's why with all these lists, we talk about creating and ***maintaining*** (editing) them.

The Second and Most Important List: List of Tasks

"Making a list of tasks" is a fundamental part of the PBET Process and of great value to all three team members. This is a list of all the tasks that anyone would need to perform on the machine; it includes operator tasks, maintenance tasks, and application tasks; it includes tasks done by either the supplier or customer or both; it includes frequently performed as well as rarely performed tasks. The more complete the list, the more effectively each team member can carry out their own responsibilities for:

- installing a machine,
- creating a complete equipment manual, and
- delivering a satisfying training class.

It helps if all team members have the same idea of a "task" and are able to write them in the same way. In turn, consistency in the name of each task throughout a supplier's organization will make it easier for customers to find procedures in the equipment manual and relating the tasks in the manual to those mentioned in the bill of materials, prints, course lessons, objectives, hierarchies, and the training manual.

Toward that end, I recommend that all team members become familiar with (a) the "8 Traits of Tasks" and (b) the "Machine-Focused Method for Making a List of Tasks" as taught in the PBET Workshop. There are some YouTube videos available that also cover that information:

Video Title	YouTube Link
8 Traits of a Task - 1 and 2	http://youtu.be/Qof5stQ9qU0
8 Traits of a Task - 3, 4, and 5	http://youtu.be/Xy-z_ByUkQY
8 Traits of a Task - 6, 7, and 8	http://youtu.be/hhA15xh8Ayc
Making a List of Tasks :The Machine-Focused Method	http://youtu.be/NopIVuaTvKg

The "Machine Method for Making a List of Tasks" works (a) for machines that already have a solid installed base and where the desire is to PBET-ize existine training and (b) for new machines, still evolving in the prototype lab – the situation described in this paper. The method is the same but the circumstances and timeline for creating the list are very different.

- In the case of making a list of tasks for a machine that has been in production a long time (perhaps years), a temporary team of experienced field engineers, working from their experiences, can create such a list in 2-4 days depending on the scale of the machine.
- In the case of a new product, the CSDT, with occasional support from engineering, will develop the list of tasks gradually over time, adding a few tasks most weeks over months of work. The list of machine tasks is considered ***tentative***, especially while the machine is still at the prototype stage. That's because the assemblies and the design for any given assembly can and will change. Because each assembly has its own list of related tasks that will go on the master list, the CSDT can expect to be making some changes to the list of tasks even when the prototype is "finished" and the company is building Machine #1.

Nevertheless, the brainstorming questions and general guidelines of the Machine-Focused Method are applicable to both scenarios.

Although the list of tasks will be tentative, making this list should be a priority because it dictates so many other aspects of the work. Every task leads to the creation of a performance objective for that task, as well as a lesson for that task.

Even the rough ***number of machine tasks***, which a list provides, is helpful since it gives you an idea of the amount of work involved. After all, a task analysis will be needed for every task on the list and you will need an average of 1-2 days per task, just to do that. The result of a task analysis, as defined in the PBET Workshop, is ***a rough draft*** from which the final step-by-step procedure, flow-chart, or other job aid can be created. For example:

- procedure-type tasks ***require*** the creation of a written, step-by-step procedure.
- process-type tasks (like troubleshooting or application problems) might benefit from a step-by-step procedure, but in most cases will need helpful block diagrams, flow-charts, tables of information or other problem solving aids.

Other Content Lists

As the CSDT members work day by day learning critical information related to or background for each of the tasks, they should record that content onto lists or tables. The previously mentioned "Major Assemblies and their Functions" is a ***content list***. Such a list, if it is relevant, may become the basis for the ***content*** of a lesson. What is content? It is the information (theory, background, or facts) needed for a person

- to make sense out of watching an instructor demonstrate a machine task, AND/OR,
- to successfully practice the task themselves.

Some of the content lists are used as the basis of introductory lessons in the course. The table of "Major Assemblies and their Functions" is one such example.

A table of "Machine Hazards" is another example of general content needed as a foundation for everything else.

Table 4

Machine Hazards

Hazard Point	*Description of Hazards*
Process Chamber	• Chemical hazard. Highly toxic, corrosive, flammable, pyrophoric or explosive gases may be in or have been in the chamber. Know the hazards for each gas being utilized. • High temperature hazard. Temperatures during processing may exceed 1000o C. Be certain that (internal and external) surfaces have cooled before touching.
Gas Cabinet	• Chemical hazard. Highly toxic, corrosive, flammable, pyrophoric or explosive gases may be in bottles mounted in the gas panel. Know the hazards for each gas being utilized.
Boat loader drive system	• Mechanical hazard. Beware of moving parts associated with the drive shaft. • High temperature hazard. Temperatures in the load area may exceed 700o C during processing. Be certain that all surfaces (including paddle, boats, drive mechanism) have cooled before touching. • Moderate electrical hazard. Very high current used for motor.

The list of assemblies and the list of hazards are examples of general information which, in a training course, trainees will be expected to memorize. The short summative bullets make it easier to hold trainees accountable - they are the standard of "what" the trainee must know. In the PBET Workshop, we show how trainers can use the complete performance objective to evaluate a trainee's "knowledge" objectively. For example:

- *Given no reference materials (from memory), describe the functions of X major assemblies. The description of the functions of each assembly [provided by the trainee] must substantially match the description of of the functions listed in Table 1: "Major Assemblies and their Functions."*
- *Given the XYZ2000 Machine and no reference materials (from memory), point to each hazard area and describe the hazards of that area. All hazard points listed in Table 4 "Machine Hazards" must be pointed out on the machine. The description of the hazards at each hazard point [as provided by the trainee] must substantially match the description of of the hazards listed in Table 4: "Machine Hazards."*

In those two examples of performance objectives used early in an equipmenrt course, specific numbers are used (where X = number), and where the bullets in the table identify the number of items required to be described. To repeat what has already been said, clearly the training instructor and the manual pages will most certainly include additional clarifying information in conjunction with both of those objectives, but in the end, it is the table which establishes the bottom line standard of what must be learned and remembered.

So there are some lists where the information is so fundamental it may be required to be ***memorized***.

On the other hand, there is much information which needs to be ***available as reference*** to those who will work on the equipment. In what cases?

- Procedure type tasks. These are step-by-step procedure types of tasks. Typically, all the worker will need on the job is the actual step-by-step procedure. And in training, no other information (content) is needed because the procedure in the manual plus an instructor's class demonstration is "good enough" to prepare a trainee for practice.
- Process type tasks. These are problem-solving types of tasks such as troubleshooting or creating an application program or recipe. Typically, the work will need helpful information to use as reference to solve the problem. That material may be in the form of a list or table. (It could also be information that is adpted to a flowchart or more visually useful formats.

So, other than the two content lists already suggested (list of major assemblies and liust of machine hazards), here are some additional examples:

(More) Examples of Lists Used As Part of Knowledge-Type Tasks or Lessons (Usually Material to be Memorized)	Examples of Lists Used As Part of Procedure-Type or Process-Type Tasks or Lessons (Usually Material Needed for Reference)
• List of Sub-systems and Assemblies • Operator Screens and Their Indicators and Controls	• List of Facility Specs • Sensors, Conditions, Expected Readings • List of Items for Daily Checkout • List of Operator Level Error Messages and Recommended Responses • Circuit Breakers and What they Control

Lists: When to Make One, When to Use One

How are these content lists used?

- For the tech writer, the lists may be the basis for information aboujt the machine that is included in an equipment manual. Of course everything that goes into the manual must be vetted for relevance to the designated user of the manual.
- For the tech trainer, the lists may be the basis for the ***content*** of a lesson. During lesson design, the list might well be copied into part of a lesson plan. The suggested "Combined PBET Lesson Planning Form and Delivery Notes" has an area identified as "Box 11" for that purpose:

Relevance is the key in training just as it is for the manual. In the PBET Workshop, the task or its subsequent objective is referred to as "a garden sifter" or "a garden screen." Just like a real garden screen is used to sift out the good dirt from the rocks, roots, or other junk, so also the task is used to guide our thinking and sift out the irrelevant (junky) information or content.

Each task is the guide to relevance. For each task we include all the information about the equipment that one must know in order to perform that task. We exclude all iunformation that does not contribute to successful performance of that task. That is why making a list of tasks is so important. It gives direction to the CSDT. They are not left to gather random information. Yes, at times members of the CSDT will gather and record random information, especially in the early weeks. But ultimately, the trainer and the technical writer should focus on gathering, recording, and providing to the customer ***only relevant content*** (information, theory, background, or facts). Just some interesting information about some aspect of the machine is discovered, does not necessarily mean it is needed by the performer. So not all lists are equal. Some are relevant, and some are not relevant.

So it is a good practice for the CSDT, each time a task is listed, to ask: Is there any information (theory, background, or facts) that a person will ***need***

1. to understand the steps of this task or process as they are written in the equipment manual?
2. to make sense out of watching an instructor demonstrate this machine task?
3. to successfully practice this task themselves?

If the answer is "yes" to any of those questions, then one of the CSDT members should start a relevant list

of information for that task and let the other team members know about it so all can contribute to the list as the days go by.

Other Activities for the CSDT

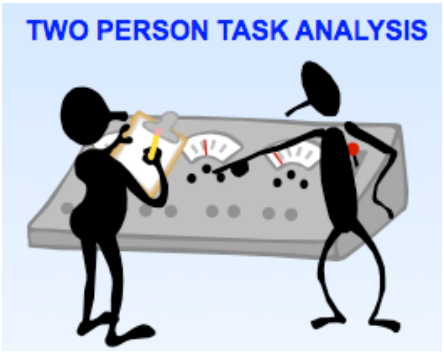
We started by saying the CSDT members should work collaboratively. This means that each member has to be a "giver" to the other members. While each member will ultimately be thinking about their own final work product (the installation, the manual, or the training course), they must also work toward the success of the other. If the trainer wants one or two days help from the writer and the service engineer for working on the learning hierarchy, the trainer must be willing to spend some days on matters relevant only to the installation or the manual.

The motto of the CSDT should be that of the three musketeers: All for one and one for all.

1. ***Task Analysis.***

   Already mentioned is that the result of a task analysis is ***a rough draft*** from which the final step-by-step procedure, flow-chart, or other job aid can be created. Errors in an equipment manual are all too common, and because it is nearly impossible to repeal and replace manuals that have errors, the result is unnecessary expenses to the supplier and its customers over many years. For example, one error in a manual will provoke calls to the customer support center over years. The PBET Workshop recommends several steps that will reduce the chance of errors in the final job aid.

   The first recommendation is to use the two-person system for a task analysis. While it is easier and probably faster for one person to write a draft for a procedure based on their own knowledge and experience with the task, it raises the risk of errors. Instead, one person that is unfamiliar with the procedure should be the designated observer and writer who is assigned to watch the designated subject-matter "expert" (SME) perform the task. An "expert" during the early stages of a new product might be the engineering tech who has so far only performed the task once or twice. It could be the FSE member of the CSDT who has only performed the task once or twice. The designated observer-writer might be the CSDT trainer or writer. The main thing is that two people are involved and the oberver-writer is less familiar with the task than the SME.

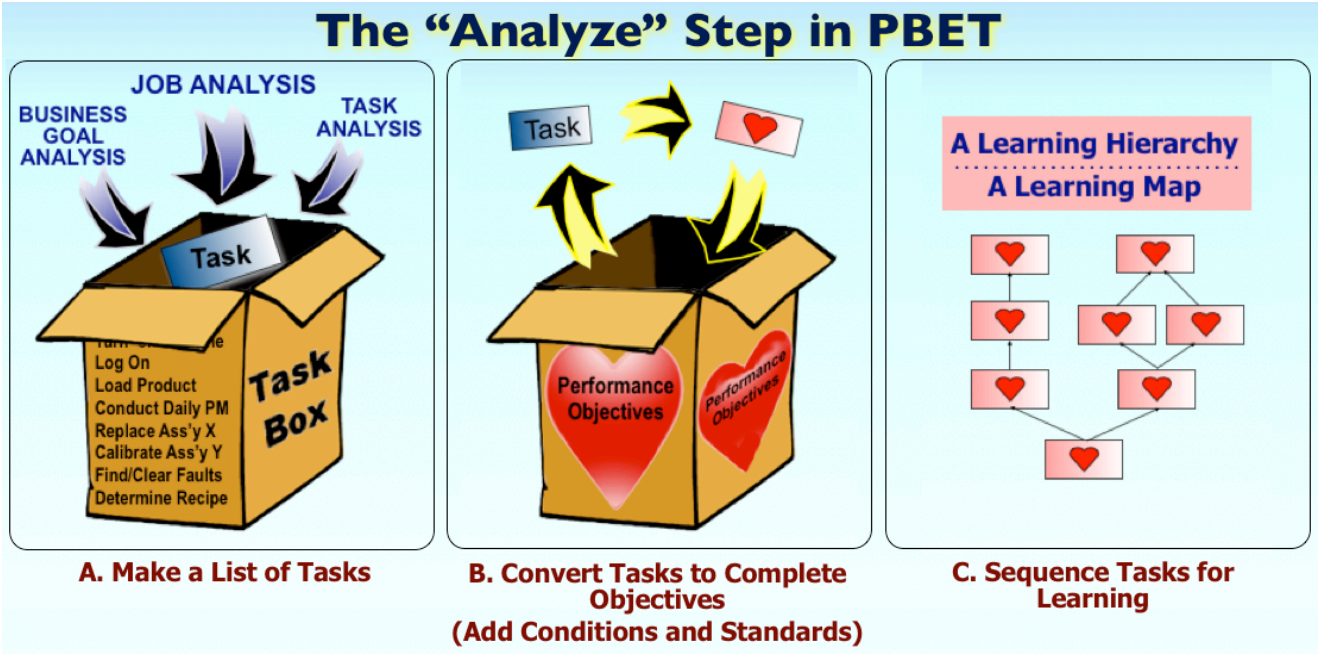


   The second recommendation is that the observer-writer ask good questions while observing. Not so many as to be disruptive, but enough to (a) ensure that even hidden decision-making steps are unveiled and included in the draft of the procedure, and (b) ensure that the expert is actually demonstrating what she knows to be the best action to take. These types of questions can help probe into both these issues:

   - Do you always do that first?
   - Would you always use that tool?
   - Why are you doing that?

The final recommendation is to get third person to perform the task while following the draft procedure. While this new third person is performing the task, it is best for both the SME and the writer to be present to see how it goes and to make changes to the draft procedure as required for greater clarity and accuracy. This is the verification step; the draft is verified by having another person try to use it.

The beauty of the CSDT is that it consists of three people who can participate in any of the roles just described and who are personally motivated to get a correct, clear, and complete (CCC) result from the task analysis. Having CCC procedures is what the technical writer wants for the manual, what the FSE needs for a smooth installation, and what the trainer needs for a performance-based course.



2. *Performance Objectives*

At some point, each task on the "list of tasks" will need to be converted into a complete performance objective. This means adding written conditions and standards to the written task.

Conditions are essentially a list of things that the performer will need in order to do the task. While the list of conditions will certainly include the obvious machine, written procedure, and standard tools, the CSDT should be careful to include any fixtures, broken parts, unusual tools, and less obvious things that might be needed even if not every time the task is done.

Standards are the criteria for correct performance. At least one part of every standard is the "when done" standard; that tells the person observing someone else doing the task, whether the task was done correctly. While the trainer may be most interested in writing a good performance objective, it can be helpful to get other opinions as to whether the trainer's idea is the single best indicator of whether the job was done correctly. Incidentally, while the indicator that the job was completed correctly should be in the performance objective, it should also be at the end of a well written procedure.

3. ***Learning hierarchy (or, course map)***

   It is the trainer's responsibility to create a learning hierarchy that shows the best sequence for learning all of the tasks in the task list. The hierarchy guides the trainer while he decides which content (if any) needs to be included in any given task lesson. Generally, content taught in earlier lessons will not be repeated in subsequent lessons; it will be assumed that the trainee will have already learned it.

   Since creating a learning hierarchy can be difficult and prone to errors in judgement as well as a compromise of different opinions, it should not be the work of one person. It should be done by a small group of people who all have knowledge of the equipment. It would *have* to be done by the trainer alone, if the trainer were developing the new product course alone, as is often the case. Fortunately, the existence of the CSDT gives the trainer some allies to help him go through the process of creating the learning hierarchy.

Political Considerations for CSDT Success

The CSDT is a cross-functional team. As such it faces the challenges of any cross-functional team. So here are some things to consider to help ensure that the concept succeeds.

Support From the Top

The management of the supplier company needs to be supportive of customer service in general! It needs to believe that each of the following are the ***top essential ingredients*** in pleasing the customers of an equipment supplier company:

- a smooth installation of a new product where "smooth" equals a machine that passes customer acceptance on schedule, where communication has been clear, and the activity has been clean.
- an equipment manual that is complete (has procedures for all tasks the customer will need to perform), correct (free from errors), and clear (easy to use and understand).
- a training course that enables the customer's trainees to become successful performers of agreed upon tasks and thus able to take responsibility for the new equipment.

Management may believe there are other key ingredients to being a "customer centered company" and that is fine. But in order for the CSDT concept to work, not one of the three ***top essential ingredients*** can be considered a "necessary evil" of doing business. One can suppose that if that were the case, the CSDT idea would be a non-starter in the first place.

Middle management must also support the idea, namely the managers of field service, technical writing, and technical training. Each manager's support needs to be demonstrated by:

- choosing their most competent employee to be the CSDT member.
- freeing that person from all other department assignments or regular duties, allowing them to be full-time members of the CSDT.
- agreeing that the team must focus on all three of the ***top essential ingredients.*** While completion of her own department's piece is important, the manager must support the idea that her own employee will need to give attention to all three goals.

- having a continual support role to the goals of the CSDT by functioning as a member of a steering committee (made up of the relevant middle managers).

Upper management must support the integration of the CSDT into the working environment of the engineering group, and into the manufacturing group as time progresses. This will work best when each of the CSDT members are the most *technically* competent of their peers, and thus most useful as part time participants in engineering or manufacturing.

Oversight By A Steering Committee

As already mentioned, a steering committee made up of the relevant customer support middle managers should be the core of the steering committee. Initially a middle manager from engineering should be a member of the committee, to be replaced from a manger from manufacturing when the team moves on to Machine 1. The steering committee should make sure of the success of the CSDT by meeting together regularly, both as a committee only and also with the CSDT members. Things for the steering committee to consider:

- The steering committee should ensure that the CSDT members are each committed to the overall goals, to the schedule for delivery of the CSDT products, and the concept of "One for all and all for one." ***The overall customer support goals*** again are:
    - a smooth installation of a new product where "smooth" equals a machine that passes customer acceptance on schedule, where communication has been clear, and the activity has been clean.
    - an equipment manual that is complete (has procedures for all tasks the customer will need to perform), correct (free from errors), and clear (easy to use and understand).
    - a training course that enables the customer's trainees to become successful performers of agreed upon tasks and thus able to take responsibility for the new equipment.

  The best way to ensure that the overall customer support goals are met, is to assist the team to develop a team charter (see next section).
- The committee should determine whether only one person from each department is the right mix for this partiucular new product and the skills and strengths of the initial three members. For example, the committee may feel like it needs two from each department, or maybe some variation of 2-1-1 representation from the three departments. No matter what the number of CSDT members is intially, the steering committee should be prepared to additional members (even part-time) to help with specific projects, particularly if the CSDT finds it crucial.
- The steering committee should ensure that the CSDT members are equally trained for working in the same manner on making a list of tasks and possibly other common core activities.
- The steering committee should ensure that the CSDT members have an area where they can meet together, probably the same place where they can locate their desks together. They should "live together" on the job, not in three different areas of the building.

- The steering committee should encourage the CSDT to ***collaborate***. Toward that end, it can be helpful for the team to pick its own leader. The leader is not a manager or supervisor. The leader is given charge to promote communication within the CSDT by meeting daily, however briefly. Leadership can rotate if the team wishes.
- The steering committee should intervene when CSDT members are clearly not collaborating or are not making progress or not keeping to the schedule.

Making Your CSDT Work

The success of the CSDT will be measured by the satisfactory, ontime delivery of the three main customer support products as described by the goals (see the three overall customer support goals on page 13). A lot depends on the working relationships, methods, and actions of each of the team members. To make that happen team members can benefit from learning about best practices for cross-functional teams as well as communication skills.

Here are some tips for CSDT members:

Learn Best Practices in Cross Functional Teams. Each team member should consider attending formal training on cross-functional teams. Getting in the right frame of mind before getting to work can help the "group" become a "team." A one or two day workshop can help the individual selected for the team to become comfortable with implementing some of the other tips which follow, as well as to:

- Take ownership for the productivity of their team, no matter what their role
- Motivate peers
- Develop trust, respect, goodwill, and cooperation
- Deal with conflict calmly
- Deliver feedback, not criticism
- Fix mistakes and get back on track
- Help the team to make "team decisions."

Get Started by Creating a Team Charter. A team charter is a document that defines the purpose of the team, how it will work, and what the expected outcomes are. It's a roadmap that the team and the steering committee create at the beginning of the CSDT's activities to make sure that all involved are clear about where they're heading, and to give direction when times get tough.

The charter should convert the three overall customer support goals on page 13 into objectives; in other words, make the goals specific and with deadlines. In addition, set up intermediate objectives (milestones) along the way to the final objectives. For more input on a team charter, see http://www.mindtools.com/pages/article/newTMM_95.htm

Communicate Well With the Other Team Members. Constant communication is the glue that will hold the team together and enable it to attain its objectives. Establish rituals (both formal and informal) to create face time. These routines will help each member develop trust, stay on track, sense problems before they actually happen, manage expectations, provide feedback, and generally help the entire team succeed.

Collaborate with One Another. Especially in the beginning, team members should do most of their work together. This is the period of learning the new machine, gathering information, creating the list of tasks, completing the majority of the task analyses, and building networks. This stage largely occurs during the same time that the team is working on the prototype with the engineering tech(s).

During the later period, although team meetings and collaboration will continue, additional task analyses may be done, and team members will continue to improve their hands-on skill at various tasks, the individual team members will increasingly be working on indivdual products. The writer will be working on the final draft of the equipment manual. The trainer will be designing and developing materials for the training course. The service engineer will be making preparations for the actual install. This stage largely occurs during the same time as the build for Machine 1.

Was this Bulletin helpful? Your feedback is appreciated!

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