# Mr. Potato Head:

## Observing & Improving Work

**Class 1**

**Explain Purpose**

* The purpose is to learn how to observe work in an organized and structured way. This allows you to identify opportunities to improve work and to estimate the impact of those opportunities.

**Provide Class Overview / Agenda**

* 1st Class: Focus on only observing work. This includes:
  + Making a list of steps
  + Timing each step
  + Building a diagram of process steps
* 2nd Class: Focus on improving work. This includes:
  + Estimating the impact of proposed changes
  + Measuring the new process
  + Iterating

**Demo Process**

* Lay out Mr. Potato head pieces in different areas.
  + Example: body on table, arms on a chair behind you to the left, feet on a chair behind you to the right, hat on the whiteboard tray
  + Tip: put in the arms before the feet. Doing feet first is a good example of process improvement later on when you can then stand Mr. Potato Head on his feet for the remainder of the work.
* Assemble Mr. Potato Head
  + Begin at body then move around the room, taking each piece and putting it in
  + Then put Mr. Potato Head on the table and do a small “Voila” with your hands
  + Repeat this twice so they get comfortable with the process

**Ask the Team To List Out Steps in this Process**

Speaker notes: Each step must have a well-defined beginning and end. Typically, the event that triggers the beginning of one step will also be the end of the prior step. When you list out the steps you will want to make sure you write down the trigger for each step that will indicate when it begins. It is also good if that trigger point has an audible noise (ideally) or at least begins when a physical touch is initiated. This allows you to get very precise in defining each step.

Things to beware: The entire process must stop at a state where it can begin again. Example: Starbucks was measuring drive-through times and one team had the process start when a car pulled up and end when a car drove away. Really, the process should end when the next car pulls up, so that the system is in exactly the same state as it was when you began. Otherwise, your times will be too short.

* Repeat the Potato Head build at least 2 times (possibly more)
* The first time, team members will write down what they think each step is and what the trigger is
* Then they can discuss and see if they agree
* If there is no agreement, repeat as needed. You may need to walk through slowly to help them identify trigger points for each step.
* Once there is agreement, repeat the process a final time and make sure that everyone agrees they have a series of steps that define the process

**Time the Steps**

* Ask them to time the steps.
  + Teams usually have cell phones with stopwatches on them. They can start the stop watch when you begin the process. The lap timer is a useful feature which they can push repeatedly to make an entry each time a new step begins. Then they should have a list of times for each step.
  + Another good method is to just record the clock time at the beginning of each step. If step 2 begins at 10 seconds and ends at 15 seconds you can infer that it took 5 seconds. This is a good way to ensure that you have the total process time captured accurately.
* Pass out the timing sheets
* Repeat the process 2 times, having them time each step
* Discuss results
  + This may be frustrating as people may have messed up timing and will likely have different results. This is a good chance to remind them of why we do this – to try and get more data and more detailed with process descriptions. But the process is not perfect. This is why averaging multiple times (at least 10) is a good way to align on reasonable measures.
* If you want to throw them off: do the process again and do the steps in a different order
  + This is another good chance to teach a lesson about how not everyone will follow the same process every time
  + They have to adapt and be flexible and record the process as well as they can
  + If the process does have variation each time it may be important to capture this separately. But for now, just agree that you’ll do it the way they decide.

This is also a good time to talk about how intimidating this may be if you go to a store and try to time someone. They’ll likely be suspicious. If you explain what you’re doing and make it more collaborative it will go over better. Have the associate help you agree on the steps, the triggers, and how to time then. You can also have the associate time you while you do the work and then switch so you time them. This kind of collaboration can go a long way.

*Timing Tips (from LEI’s website)*

* Collect real times at the process.
* Position yourself so you can see the operator's hand motions.
* Time each work element separately.
* Time several cycles of each work element.
* Observe an operator who is qualified to perform the job.
* Always separate operator time and machine time.
* Select the lowest repeatable time for each element.
* Remember shop floor courtesy

**Draw a Time Diagram**

You can now demonstrate how to draw a time diagram. Create a vertical, stacked bar chart with one block for each process step. Height of each block should indicate the time it took. This will give you a visual representation of the process.

You can also make the task boxes out of construction paper with magnets (if you want to get fancy). Trim them to the time it takes to do each task. Then you can play with re-ordering them on the board. (Although we won’t do this just yet.)

**Discuss Value and Waste**

This is a good time for a discussion of value and waste. Which steps in the process are value? Which steps are waste? The only moments in this process that are true value are the clicking of the pieces into Mr. Potato Head. It’s just a microsecond of value. There is no value in any of the travel time. If we could wave a magic wand and make all the pieces fly up instantaneously into Mr. Potato Head we would. The customer would not pay us to spend any more time on this task than that.

Discussion point: most processes are at least 60% waste. Many people won’t believe this. But if you lay out the process, time it, diagram it, and have a discussion like this, they’ll start to realize the majority of what we do involves a lot of motion and waste that surrounds a few very key moments of actual value-creating work.

**Conclusion of Class 1**

This is the end of the first class. Assign homework that involves going to a store, picking a job or process, and then practice what we learned in class on that process. Identify the steps in the process. Time each step. Collect data points for at least 10 repetitions. And then bring this back to the next class. It is good to go with students to the stores to help them with this as there will likely be many questions and good coaching opportunities.

**Class 2**

**Recap & Homework Review**

Recap what we learned last time. Pull out the process sheets with the steps for Mr. Potato Head and the times for each step. You can also review the team’s homework. Have them draw a time diagram for the process they observed. Also have them discuss anything interesting they saw during the experience? Did anybody do the process differently or do steps out of order? Was it difficult to time each step and get good results? Was there a lot of variation in the times they measures?

**Repeat Process Timing Exercise**

Refresh their minds on the process by laying out the Mr. Potato Head supplies and doing the process again. Have them time you and see if the times match what they had before. They should be close, and close enough is good enough here.

**Present New content**

Present the “Facilitating Improvement” slide with ideas for improving work including:

* Eliminating unnecessary elements
* Rearrange elements (layout) for better sequencing (flow)
* Add/subtract elements altogether OR to other jobs (offline)
* Combine elements when practical
* Simplify all necessary elements to make job easier, faster & safer

Leave this slide up as you begin process improvement.

**Process Improvement**

Ask the team to identify ideas for improvement and try them out.

Note: The first obvious idea is to remove travel time by putting all the pieces on the table. There are a few good lessons to point out here:

* Have the team estimate the impact of removing all the travel time. They should be able to get pretty good estimates from their work story diagram, and this is a good chance to explain why measuring is so helpful. Especially if making changes was difficult it would be good to know how to estimate the benefit and back that up with data.
* They will also protest that this is too easy/contrived of an example. Tell them that many factories have people walking everywhere because of inventory. Imagine we were making 10,000 Potato Heads a day. We’d have piles of bodies, arms, legs, hats, etc. and would have to figure out how to arrange them. It is very possible that we’d have to walk around these piles to get work done. This is where lower inventory levels (leaner processes) can be a benefit by removing the inventory that everyone has to walk around. It should also get them thinking about how they might have people who’s only job is to bring the parts to the person on a tray to see if that speeds them up. Similar to the “Water spiders” at Toyota whose job is to run parts from inventory up to the assembly line, but only enough to do about an hour’s worth of work. This keeps people on the line free from too much inventory and able to move easier.
* It is also good to sit down now that all the parts are in one place. Sit down slowly, breathe deeply, and smile. Ask them “what just happened?” “You just improved my job and my quality of life by letting me sit. Oftentimes, re-designing work is a good chance to improve things for associates and make a big different with just little changes.”

Repeat the process and have the team time you. Measure the impact of the change. Then ask the team to propose other changes. Usually you can get them to suggest the following:

* Putting the feet on first so that Mr. Potato Head can stand in place for the rest of the process
* Putting in two arms at the same time (using both hands)
  + Have them focus on your hands as you work and get them to notice that one hand is just sitting there while you do most of the work
  + Getting both hands moving is a good way to cut down on total process time
  + You can do two ears at the same time too

Don’t be afraid to let them try weird things. Just give it a try, measure, and see if it improves or not. By the end of this process you should have a process that is much faster than before.

**Discuss Importance of Standards**

It is good to wrap up with a discussion on the importance of standards. If you want people to see the benefits of the new process you’re going to have to train them on it. (The T-Shirt training class is a good example of how to pass this training on to new hires. Show them a process, then describe it, then have them do it. Then have them teach in the same way.) You may also want to have process diagrams and work stories like the ones we built available for each task. At Toyota, they put these on display at the job site for each function. There is a card describing the process that is taken and the time it should take so that everyone knows how to do the job.

It may also be good to discuss the power of having 400,000 associates all engaged in making work better. What might they find that we could never find ourselves? Nothing we did in this class is hard. It’s really just a matter of giving people a new way to look at work and permission to begin experimenting and trying to improve that work.

*Good follow-up classes include*: T-Shirt training class. Ben Root’s 6-step problem solving class. A3 Problem Solving.