

Volume 12, Issue 08 □ February 21, 2005

Important Dates to add to your calendar...

- **Underway:** a full schedule of HPM-to-HPM Employee visits – or Leveraging Tours – on the 2nd & 4th Tuesday of each month.
- **Feb 22, HPM Employee Leveraging Tour:** Host: Velcro Canada, Brampton. Register via Nicole
- **Mar 08, HPM Employee Leveraging Tour:** Host: Canada Post, Toronto. Register via Nicole
- **Mar 29, HPM Employee Leveraging Tour:** Host: Hammond Power Solutions Guelph **FULL FULL FULL**
- **Apr 13, HPM Open House,** An open session on Consortiums, what they are, what they are not... information to help determine if a consortium makes sense in your future.
- **Apr 20th,** 12:00-4 pm **HPM GMT Meeting,** all HPM Directors or Alternates invited. Host: GE Rep. & Insp.
- **April 21, Value Stream Mapping Forum** – A Clinic for VSM in Non-Production Arenas... Re-scheduled from last fall. Details coming
- **May 18th,** 11:30-5 pm, **HPM Board Meeting** Host: Canada Post
- **Jun 6-10 (2005): "Implementing & Sustaining Lean Thinking Everywhere"** An AME Canadian Region & CME Western Division, practical Lean Conference in Edmonton, Alberta. www.measureupforsuccess.com

The Skill Shortage Is Expanding

Across Canada –and especially in the west – mfg. is booming but at the same time constrained by a lack of access to skilled people. And according to Jay Myers, his surveys indicate it will get worse.

In Saskatchewan and Alberta, welders are in such short supply, entire families are being sponsored to come to Canada. In one Saskatchewan project, 30 families were brought to Canada from Eastern Europe, their welcome turned into a warm social event with communities and former countryman on hand to welcome them. And there are more such initiatives in the months to come.

There is an excitement and earnestness to be found in manufacturing as you look west from the Ontario border. Over \$5M has been allocated for the establishment of new Consortiums in Manitoba, that includes support for the growth of that provinces infrastructure.

HOT: This Year's Lean Conference in Edmonton ... it is the forerunner to the big Boston Conference this fall. If you're in an HPM Consortium company – you can get 20% off the Registration fee. Find 4 others from other HPM companies & register together by sending your fees to the HPM Office. The office will then register all 5 (into one cheque) at the price it would take to register 4. It is a 5 for 4 deal... all from one firm or Consortium.

Free HPM Employee Leveraging Tours Continue

Canada Post

March 8th ~ 9-11am

"Practical Employee Learning Exchanges"

Open to any HPM member company employee
Monthly: 2nd & 4th week from 9-11 am.

Each Tour site will show:

A) A 'Best Practice' they'd like to make even better

B) An area where 'Suggestions are Welcome'

To Register: Call Nicole before preceding Friday for security clearance. Names, titles, phone, email - to info@hpmconsortium.com 519-893-6260

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TOUR #8: Mar. 8th ~ 9 am to 11 am.

Visual Documentation in Manufacturing

By Steven L. Blackwell

Brain scientists at Oxford University's Department of Experimental Psychology were asked, **"How do visual instructions influence the motor system?"** Their reply was, "We saw direct correlation of visual cues to motor skill responses." **In other words, using visual aids combined with instructions can produce consistency in motor skills.**



Operational Method Sheet for assembling fan (click on image to enlarge).

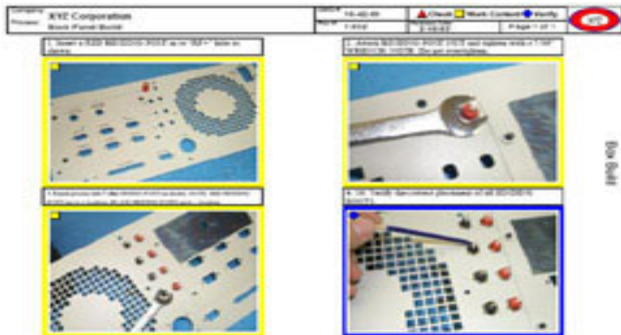
Manufacturers can put those findings to use by **including visual cues with work instructions in the factory.** Over the last 10 years, many consultants and manufacturers have begun to use visual images to accompany their manufacturing line assembly instructions. Called operational method sheets (OMS) or **visual method sheets (VMS)**, they combine traditional work instructions with electronic images to increase the understanding of work instructions on the factory floor.

CAD drawings have been used for some time for documenting manufacturing procedures, but they are often burdened with lengthy technical text. **To produce true visual documentation, lengthy technical work instructions are changed into short sentences and electronic images attached.** The images show the employee what to do. They can clearly see how the work is to be performed, instead of reading about it and trying to interpret it for themselves.

Expecting the line-worker to interpret text-heavy work instructions can be a recipe for disaster. Using them for training is just as bad. **Inconsistent quality can and usually does result when relying on text alone.** Employees are seldom willing to read lengthy technical instructions. It's not unusual to hear assembly-line employees asking other line employees, "What am I supposed to do here?" This uncomfortable reality does not fit well with our pursuit of perfection -- doing it right the first time -- in manufacturing.

It's true that a picture is worth a thousand words. It once took illustrators hours to produce pictures for OMSs and VMSs from poor photocopies, hand drawings, or text over CAD drawings. With digital cameras, however, the job is much easier.

Electronic images are combined with written instructions in a consistent format for easy and rapid comprehension. The result has been extraordinary. Companies have witnessed higher quality and lower error rates in the building of their products.



Operational Method Sheet for back panel build process (click on image to enlarge).

Many workers speak English as a second language these days, and visual instructions can overcome problems encountered when using English-language text instructions. More pictures with fewer words seem to be a good answer to language problems.

So much can be demonstrated by an electronic image. Using pointers and even fingers pointing in the pictures, most of the story about the work to be performed can be

"The ancient Romans had a tradition: whenever one of their engineers constructed an arch, as the capstone was hoisted into place, the engineer assumed the accountability for his work in the most profound way possible: he stood under the arch."

Michael Armstrong

told. A few cut-out arrows and symbols attached to sticks or wires positioned in the picture can eliminate the need for picture editing software. The visual approach makes the process of illustrating a sequence of events (SOE) short and easy. You can set up a prototype line, walk through the steps, take pictures and record the instructions, and then combine them into a VMS.

Many companies have successfully used word processing, presentation software or other common software packages to create pictorial instructions. There are also standalone software packages for creating visual instructions in a more automated and rapid fashion.

The conclusion is this: **If there are training problems, quality problems, and repeated, time-consuming questions from employees about**

what they are to do on the assembly line, visual (pictorial) work instructions are probably the answer. VMSs answer the cry of many employees who believe, "If I see it, then I can do it."

Jerry Boynton, Principal Manufacturing Engineer of HEI, Inc., says about using VMSs on the assembly floor, "Our assembly procedures now stand head and shoulders above any previously created document. The Program Managers have praised the appearance and simplicity of communicating a process pictorially. Our assembly staff has become convinced that instructions are now easier to understand, explicitly illustrating the "how to" of a process without the need to read and understand lengthy text descriptions."

Using the correlation of visual cues and motor skill responses could solve many problems. All that is necessary is to add electronic images to assembly instructions and cut the lengthy text to create employee-friendly pictorial instructions.

Steve Blackwell, Ph.D. has been a consultant in lean initiatives and industrial psychology for years and now specializes in training and the creation of visual documentation. He is the President of Blackwell Solutions, Inc., a consulting and visual instruction software firm located in Brighton, Colorado. You can e-mail Steve at steve.blackwell@harvestbrighton.org, or visit his web site at www.visualinstructor.com.

"There are two things people want more than love and money – recognition and praise" **Mary Kay Ash**