



Chuck Ayersman, Gleason Cutting Tools Corp.'s production manager, is a solid champion of lean and lean OJT, where all shop personnel are cross-trained so that no critical/constraint-area machines ever go unmanned or lose production time (all photos courtesy Gleason Cutting Tools Corp).

Real-World Job Training the Lean Way— AND LOVING IT

Jack Mc Guinn, Senior Editor

Make no mistake—lean manufacturing is here to stay. And no wonder. As a fiercely competitive global economy continues to alter companies' "Main Street" thinking, that relatively new dynamic is spurring the need for "I-need-it-

yesterday" production output. And for increasingly more industries—big or small—that means getting as lean as you can, as fast as you can.

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But did you ever wonder what other benefits beyond better throughput lean might afford companies? Here's a simple equation: better-trained workers = better production = better profits. Yes, the posited equation is simple. But the solution?—much less so. Anyone who runs a gear shop, reads this magazine or a daily newspaper is well aware of the growing lack of highly trained workers to run their machines and do their quality inspections, for example. So it is logical to assume that improving on-the-job-training (OJT) is a top priority.

Enter lean—and with a vengeance—to not only make a company more productive and cost-effective, but to provide a solid workforce as well. Not just, for example, to train a worker on how to organize his tool pegboard. But to also train a new hire—or a veteran employee—on how best to run his or her multi-axis machining center or hobbing machine. *Gear Technology* conducted an admittedly limited—but rewarding—exploration of the concept. We talked to the folks at Gleason Cutting Tools Corp. in Loves Park, Illinois, where lean is the way of

the world, if you will—and more. Specifically, we queried Gleason's production manager, Chuck Ayersman, regarding the demonstrable success they've enjoyed since implementing lean. But we also went a step further—we questioned some of the Gleason shop floor personnel—the people who do the training and do the work—as to how lean has affected their OJT methods.

Last, we talked with Shaun Browne, president of Canadian-based Digital Mentor Group Inc. (*digitalmentor-group.com*) for a relative outsider's input regarding lean-inspired, gear-related OJT. His firm strives to build high-performance workplaces that enable clients to, as he says, “capture, document and transfer organizational best-practices to production employees.”

To do that, Browne developed WHYSEEQ—a standard-

work instruction development process; and One Way/Right Way and Every Buddy a Trainer—two OJT systems specifically

designed for the manufacturing, processing and construction industries, among others. His latest book, *Re-Inventing OJT*, based on his STARRRS process for supporting training in the workplace, will be published later this year.

First up, Gleason's Chuck Ayersman.

(GT). Can you quantify to what extent lean principles have been incorporated into your location's OJT program?

(CA). One hundred percent shop-wide manufacturing, direct and non-direct departments; heat treat, coating and shipping operations.

GT. What metric(s), bench-mark(s) do you use to measure the efficacy of the lean-influenced OJT?

CA. We measure our performance in reduction of lead times; labor cost to shipments; non-conforming quality cost improvements; and reduction of safety incidents through risk

assessment. Customer satisfaction, personnel turnover, number of implemented cost saving ideas per employee and increased profitability are also considered.

GT. Do you actually have tradition-based, in-house training staff onsite, or does lean render that need unnecessary?

CA. We have experienced technical people within all departments that are now very competent in lean principles to help expedite (OJT) in all phases.

GT. With lean-inspired OJT methods, are more—or less—personnel needed to do the job?

CA. Yes and no. All personnel are cross-trained so that no critical/constraint-area machines ever go unmanned or lose production time. What we call “support operators”—those that are not in constraint areas—can efficiently operate



Brodie Goza, referencing an OPS (operational process standard) to aid in the training of a new employee. OPSs are used to ensure “standard (quality) work” and that everyone performs processes the same way.



Three happy campers on the Gleason lean team are (from left) Dane Mead, Brodie Goza and Larry Smuck.

constraint processes without adding additional people. We will add additional people only in a case of a constraint process that needs to create weekend shifts for 24/7 operations.

GT. Is there a cost difference in using lean-inspired OJT methods for training production workers?

CA. Cost difference gains are realized by continuing to improve operating procedure standards (OPS); best-practice processes—which decreases training time; and less non-conforming product and injuries through continuous ideas/kaizen events.

GT. How about time differential?

CA. All people learn at different levels, and training is an ongoing process. We have total confidence as people are trained that they have a better understanding; we don't waste valuable time for retraining as we did in traditional training.

GT. Who trains the trainers?

CA. Trainers are continually evolved from our lean environment. This is a result of continued education of manufacturing processes as well as total knowledge of the business. This education is then applied to how it affects the employees, the community and the environment. Standardization of OPS for processes and ISO environmental and quality documentation assure training is ongoing and current to the latest standards.

GT. Is there a lean "bible" or other publications you use to augment OJT?

CA. Each and every process has a best-practice OPS, and the group is empowered through documented processes and procedures via team-approved changes and kaizen events.

GT. How does lean-related OJT affect traditional "mentoring" by veteran employees of their newer counterparts?

CA. Veteran operators welcome the opportunity to train newer employees through documented training procedures (that) transfer as much knowledge as possible. Everyone is aware that the more efficient newer employees become, the easier their own jobs become; and we all win as a team. With traditional training, operators would be less than willing to give all (their) knowledge to newer people, thinking they may become a threat to their position and earning power.

GT. How does lean OJT impact upon "remedial training"?

CA. It takes people through disciplined, step-by-step procedures designed to improve skills and knowledge with trainers' and supervisors' involvement to monitor, assist and improve performance.

The following responses are from Gleason personnel—Larry Smuck (LS) (contract services sharpening machinist), Dayne Mead (DM) (hard jobs machinist) and Brodie Goza (BG) (bevel/EDM lead operator). As their answers indicate, they are not simply drinking the lean Kool-Aid. They are all hands-on-deck for lean thinking and lean OJT.

GT. Since lean has been implemented at your plant, have you received any training—or re-training—relevant to the things you do, especially a new machine that you were previously unfamiliar with?

DM. Yes—by having kaizen events. Specifically, on

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reducing set-up times, which in turn made me have to re-evaluate how I was trained and how I train future operators. We have also been provided lean books from the company library.

BG. Machine operation training starts on Day 1—and never ends. There is always something to be learned about a machine (new or old) today that we didn't know yesterday, regardless of an individual's total experience. If we think we know it all, we just closed the door to new ideas and future development.

GT. Were you trained by a fellow employee, someone in management or by a professional trainer? And could you please briefly explain how that worked?

DM. After the commitment was made to do lean, middle-management was instructed on how to be lean coaches. And then outside consultants were brought in for continued supplemental training.

BG. We read lean culture books, were coached by managers, taught each other and were provided with professional training by a consultant. Kaizen events with a consultant involved real-life examples, working through daily problems. This direct involvement helped to jump-start our culture.

GT. Keeping in mind lean-inspired principles used for OJT, what is your definition of "doing a good job"?

DM. By understanding who is your next customer, you

can better focus on their needs. And by concentrating on eliminating waste. (Both make you) a greater benefit to your company.

BG. Meeting expectations regarding performance and production goals is doing a "fair" job. Doing a "good" job also entails having a culture that is effective, improvement-based and team-oriented.

LS. Understanding the proper product flow, meeting the customer's requirements and continuing to learn and perform lean principles.

GT. Since lean was implemented, have you provided any OJT for a new hire? If so, how would you compare that experience with how it was done in the past, pre-lean?

DM. Yes (I have), and I definitely have a lot more awareness when I am training—use of major goals of reducing waste and working more efficiently.

BG. New-hire OJT is much easier now. This is mainly because we now have operational process standards located at each machine that define each setup. These comprehensive procedures are full of step-by-step pictures that help a new person quickly understand what is being done. It also standardizes the process so everyone performs each task the same way.

LS. In the past, new hires were taught how to simply keep the machines running, producing parts. Now, the train-

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ing is more complex because they are educated on how their performance impacts the whole process.

GT. Has using lean-related principles for OJT made the responsibility for training someone easier and more effective for you?

DM. Yes, because it helps you to get people to buy in to what everyone is trying to accomplish with lean manufacturing. Documented best-practice procedures have been established, so all are doing the tasks the same way—every time.

LS. Yes, because we have documented processes that can be given to new hires. They can read and see the process step-by-step, which supplements the “hands-on” approach.

GT. How about remedial training—i.e., using lean-inspired practices to retrain a veteran co-worker?

DM. Yes, the continued positive results sell themselves to the veteran co-workers—that working more efficiently will make their job easier—they are more open to retraining and new ways of thinking.

BG. This can be very difficult. Long-term employees are the most difficult to re-train, but you can teach an old dog new tricks! The best lean-inspired practice is—involvement. Get them involved, they see the resulting benefit, and they buy in.

LS. Open-minded employees who wanted to improve and be a part of what we’re doing accepted the ongoing change. Those that didn’t moved on to other professions.

GT. Is OJT at your plant easier or more complex using lean?

DM. Easier, because once the culture has changed and attitudes are changed there is a lot more support with on-the-job training.

BG. Easier, again because of the Operational Process Standards.

LS. Easier because training requirements are documented, as it makes follow-through much simpler.

GT. Is there now a “set-in-stone” procedure for OJT?

DM. No; we are more flexible to the needs of each individual operator. All individuals require different specifics while being trained to reach the common goal

BG. There are no set-in-stone procedures. OJT will always need to be “molded to fit” a trainee’s learning style; everyone learns differently. As trainers, we still need to adapt to fit the learning style.

GT. Is providing or receiving lean-inspired OJT a more rewarding experience as opposed to doing it “the old way”?

DM. Yes co-workers that are more open-minded are easier to work with.

BG. Absolutely; new employees are “part of the team” from Day 1. We value their input and want them to succeed. A trainee’s new ideas matter. This is rewarding for both the

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trainer and trainee because being involved gives everyone a sense of respect.

GT. Do you believe lean OJT is a more “real-world” type of instruction in that it is perhaps much more application-specific than previously?

DM. Yes, especially with all the competition in business. Everyone knows how their specific tasks tie directly to the big picture, whereas in the past, they only knew their specific tasks and nothing more.

BG. Yes. Previously, we would teach a person the basics on how to run a machine and then throw work at them. Now we apply real applications during the training. Knowledge is open, nothing held back. Difficult applications are part of the training.

LS. Now training doesn’t end with simply producing a part. There are direct interactions with the end users and how it fits into their needs on a daily basis.

GT. Is it your perception that Lean OJT is better accepted by new hires?

BG. Jump in, sink or swim—the old way—that is hard to accept. Now we build a boat and row together. Lean OJT is not just about teaching someone how to do the job. It is about teaching them a culture that is effective, improvement-based, team-oriented and, ultimately, makes us better today than we were yesterday.

Which brings us to Shaun Browne to close things up. You’ll note some of the questions mirror those asked of Gleason’s Ayersman.

GT. Once lean is established, can you quantify to what extent lean OJT principles are typically incorporated into a gear industry manufacturer’s OJT program? And what metric(s) are used to measure the efficacy of lean-influenced job training?

SB. The issue of metrics is an interesting one, as there is often a disconnect between how Operations and Human Resources track training and performance improvement. Traditionally, HR has tracked training using softer elements such as completion results, reporting on numbers of attendees and workshops offered. To be fair, they often lack the ability to track training implementation. While there are tracking systems, like “Friday 5s,” these systems rely on the workshop participants to self-report on skill usage and knowledge application after training.

Operations, on the other hand, tracks everything related to the production process. These are usually “hard” numbers. Examples might include elements such as product quality, process compliance, tolerances, change-over statistics, etc. As HR becomes more involved in job skills training, they will need to adopt harder measurements more akin to what Operations is already using.

GT. Do companies typically use in-house trainers?

SB. This is one of the biggest issues confronting lean manufacturing, in my opinion. While there is a lot of lean training—and by that I mean training on how to do a lean project—there must also be a strong emphasis on lean implementation and application. Lean processes have to transition to (OJT) if the



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lean project is to be fully successful. It is essential that effective, practical job-skills training follows the lean process. That training can be done in simulation or in production, but it has to be done. In-house trainers can be a good choice, but we've also had great success using occasional trainers—production employees who take on training duties for a short period of time—as they are very familiar with the operation of the equipment. The key to this is planning for implementation as diligently as you plan for the lean project itself.

GT. Lean OJT method: more—or less—personnel needed?

SB. We believe that more trainers are required during lean implementation, but they don't have to be training professionals. We've worked hard to de-mystify and de-professionalize the training process by building a training-delivery template that embeds adult learning principles, evaluation and activities so that the occasional trainer is able to deliver "good enough" (OJT) without having to waste time learning all the theories.

GT. Is there a cost difference in using lean-inspired OJT?

SB. Actually, it can be less expensive. While the training process may take more time—due to including adequate practice to embed the new or revised process—the "time-to-competence" is reduced. The issue is how long it takes the employee to return to productive performance. Using a traditional job-shadowing technique, the time-to-competence is usually much longer than when using a more structured

approach.

GT. How about time differential?

SB. Using a more structured approach might take a few hours instead of a few minutes of (traditional) job shadowing. Yet the pay-off—the return on investment—comes in producing a safer employee who generates less re-work and scrap and who produces a quality product that meets design standards and customer expectations.

GT. Who trains the trainers?

SB. If you are using a straightforward job-skills training system, then training can be done inline or in small workshops that might last a day, including sufficient practice time to develop trainer competence and proficiency.

GT. How does lean-related OJT affect traditional mentoring by veteran employees of their newer counterparts?

SB. I don't think there is much of an impact at all. The reality is that about 80 percent of training in most manufacturing firms is informal. That means it's training that is not sanctioned by management, not tracked by HR and doesn't use standard work instructions to ensure consistency. That informal training will continue in spite of the desires of the organization. If, however, you can provide all employees with a training process or template, at least you can control the delivery process.

GT. How does lean OJT impact upon remedial training?

SB. Remedial training—training to "fix" an employee

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and return him or her to an approved level of process compliance—requires that management already knows what a “good job” is. The problem is that it is difficult to get an agreement on the good job definition. If you want to check this out, pick a production task in your manufacturing area



Shaun Browne, author, OJT implementer and Digital Mentor Group president.

and ask the supervisor what constitutes a good job for that operation. They might answer “safety” and “maintain line speed.” Then ask the Quality department the same question; they might respond by quoting design specifications, maintaining build tolerances and meeting the customer’s expectations...(dependent upon who is being asked), all the answers are different. Yet, the real answer is “all of the above.” Remedial training has to include safety, line speed, maintaining specifications and achieving improved produc-

tivity while providing the employee with the skills, knowledge and experience necessary to work with the least-wasted movement and highest productivity. 

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