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A PERSON-CENTERED APPROACH TO SUSTAINING A LEAN ENVIRONMENT—JOB DESIGN FOR SELF-EFFICACY

DAVID S. VEECH

Toyota credits its team members for the success and sustenance of the Toyota Production System. The power of a highly skilled and motivated workforce is a significant competitive advantage for any company, in any industry. Toyota's team members collectively make hundreds of thousands of improvements to their work every year, reducing costs, reducing cycle times, and improving working conditions. Drawing on old and new research, this paper poses a theoretical explanation for why employees get involved and stay involved in transformational activities in organizations. It will explore relationships between corporate belief systems, job and employee satisfaction, and individual self-efficacy and then offer a way for companies to apply all of these theoretical ideas through two practical tools.

Many organizations are attempting to implement Lean principles and practices through Kaizen events, Kaizen blitzes, accelerated improvement workshops, action workouts, or other-named activities that typically generate significant gains in productivity, inventory reduction, or other measurable parameters in a short time within the production system. In teaching and listening to leaders in most of these companies, I also hear about the difficulties they face in sustaining those gains. While I haven't collected any hard data yet, anecdotally these leaders estimate that the gains nearly disappear within six months of the event. As I explored with them the methods employed, it became apparent that they were unable to get

their operations-level employees fully involved to the point where they take ownership of the newly redesigned process.

In one recent discussion with a supervisor about the employees' attitudes toward Kaizen events, she told me (essentially) "We loved it the last time they [the Kaizen Team] came in. They helped a lot. We can't wait until they come back again." In a more rigorous study of the effects of Lean production on the workforce, Parker (2003) found that certain practices falling under the category of Lean production could be damaging to employees. She suggests "caution for companies considering Lean production initiatives, especially if they aspire to have a mentally healthy, self-efficacious and committed workforce" (Parker, 2003, p. 631). I believe her findings are valid, but I don't believe that her subject companies did anything Lean. I would expect the same kind of damage to employees in companies doing Kaizen events without modifying the systems supporting the value-adding operations, especially the system that measures and rewards the performance of leaders in the organization.

Typical Kaizen events focus all their energy on improving a particular process. In fact, we have been challenged to focus on process improvement for years, following the teachings of Deming (1986), Ohno (1988), Womack and others (1990, 1996.) While these esteemed researchers, leaders, and consultants also recognize the importance of treating team members with dignity and respect, their followers have apparently missed the subtlety of focusing on employee improvement instead of process improvement. If our focus is on improving people, a likely outcome is that those people will possess the right skill set to continue improvement activities on other processes. This is a fundamental shift in attitude for leaders. This further requires us to rethink our definition of success and how we evaluate managers.

What really makes the difference between a Lean organization and a conventional organization doing Lean things? Here's an excerpt from Toyota's Web site:

What Sets Us Apart?

> The Toyota Production System is at the heart of everything we do. Based on the concept of continuous improvement, or Kaizen, every Toyota team member is empowered with the ability to improve their work environment. This includes everything from quality and safety to the environment and productivity. ***Improvements and suggestions by team members are the cornerstone of Toyota's success.*** (Emphasis added.) http://www.toyota.com/about/operations/manufacturing/index.html

It is obvious that Toyota links the role of its team members with the success of the Toyota Production System and therefore with the Toyota Motor Company. Team members who make small improvements every day, or who solve countless minor problems in the course of the shift, make the Lean system work on a sustainable basis. Companies may argue that Toyota has a unique environment, with high volume and highly standard products; therefore, Toyota's approach won't work for them. But since Toyota's approach is all about people, no one can argue that Lean thinking doesn't apply to their business—everyone has people.

What makes the difference between a Lean organization and a conventional organization is the way it treats its people. A true Lean organization focuses *first* on improving people, recognizing that a workforce with a higher skill set will accelerate any program of continuous process improvement. To help illustrate this point (Figure 1), let me briefly review my version of the Lean house (Veech, 2001).

In order to achieve customer satisfaction, a company must master Just-In-Time (JIT) and Jidoka in its value creating operations (whether manufacturing, service delivery, or supporting operations). Just-In-Time involves understanding work processes, and applying various Lean tools (5S, setup reduction, Kanban, work cells, etc.) to enable continuous flow through the work place. The JIT column is often called the "Go" column, because all the tools and techniques of JIT are designed to make the system go faster with less inventory required to support it. Jidoka refers to the interaction of the team members and the machinery. Under jidoka, we apply tools like andon systems to bring attention to problems, visual controls, operator inspection, and poka yoke, or mistake-proofing. This column is often called the *Stop* column because these tools are designed to stop the process to prevent any defects from proceeding.

In order to master JIT and jidoka, a company must build on a platform of employee satisfaction. (This is the area on which this paper focuses, so we'll get into much more detail later.) In order to create conditions satisfying to employees, companies must have stability at the foundation of its system. The significant elements of stability and employee satisfaction are all human issues and apply universally to any business. Let's take a closer look at these two pieces of the house.

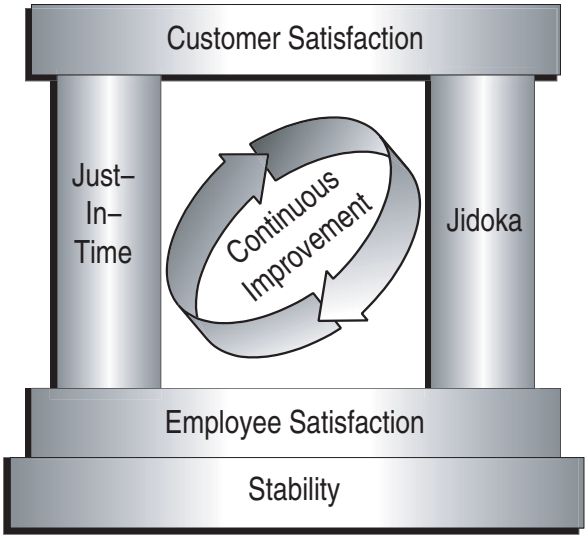

FIGURE 1. THE LEAN HOUSE

STABILITY

A Lean company recognizes that stability doesn't equal rigidity. Stability simply refers to the framework within which the company performs its work. Stability means people and processes are operating steadily, as needed, with predictable outcomes. The word "operating" makes this dynamic rather than static. The phrase *as needed* is important in this definition because we don't seek a system that is always on, unless the demand on that system requires it. We want a system that will work when we need it, stop when we don't, but start back up immediately at the demand of the customer (Veech, 2001). There are four elements of stability that organizations must put in place and maintain:

1. **Trust** between management and the workforce, between the different departments within the company, and between members on teams;

2. **Commitment** from visionary leaders throughout the company, manifested in servant leadership and loyalty, and from the employees, manifested in organizational citizenship behaviors, including the discipline required to adhere to standardized work practices;

3. **Situational awareness,** or possessing a complete understanding of what's going on in the work/business environment, including having processes that are understood and statistically under control; and a

4. **Trained and empowered workforce**, understanding that it is the leader's responsibility to equip the workforce to accomplish the tasks for which she wishes to empower them.

EMPLOYEE SATISFACTION

A Lean company seeks to provide a work environment that satisfies and motivates its team members. We want team members to identify problems and to generate effective solutions. Satisfied employees are more likely to take that step. To get there, leaders need to understand a little more about people in the work place. Motivation and satisfaction have been topics of study for years with various ideas submitted, but the bottom line is that each of us is motivated by something different. The task of the leaders in a Lean environment is to know their team members well enough to be able to identify what that is, and then find a way to offer it as an incentive.

One of the most powerful motivators is simply a team member's own assessment of his or her ability to do the work we're asking them to do. This is individual self-efficacy. If a team member is confident in his or her ability to perform a particular task, he or she is said to have high self-efficacy toward that task. Those with high self-efficacy are the ones most likely to muster the motivation to attempt the work and then to try and improve the work. They are also more willing to try new things.

Leaders can take action to create an environment that enhances the self-efficacy of the workforce.

"One of the most powerful motivators is simply a team member's own assessment of his or her ability to do the work we're asking them to do."

Creating a satisfying work environment will have an enhancing affect on self-efficacy. Certain studies identify meaningfulness, awareness, and responsibility as a set of critical psychological states that contribute to job satisfaction.

- Meaningfulness derives from task identity, task significance, and skill variety (Hackman & Oldham, 1976). We can create meaningfulness in the operations area through job classifications and standardized work, which allows the team member to identify with the tasks at hand; communicating the value each team member adds at each work area; and rotating work arrangements, providing opportunities for learning new skills.

- Awareness is brought about partially through feedback, which provides knowledge of results for the team member. Awareness also includes a full understanding of the requirements of the job, both at the workstation itself, and within the entire system. Leaders can provide feedback directly, or they can create systems that allow the team members to know the status of the work (and their performance) at any time.

- Responsibility requires that we equip our workforce for the tasks at hand, and then turn them loose to do them. This autonomy reflects to the empowerment mentioned earlier as an element of stability. It also includes the degree to which the employee has control over his or her own work environment.

SELF-EFFICACY

Apart from providing a satisfying work environment, there are four other primary contributors to self-efficacy (Stajkovic & Luthans, 1998): (1) Mastery of the skill or task; (2) verbal persuasion, manifested in coaching and teaching; (3) learning, through observing the behaviors and consequences of others; and (4) motivation.

Mastery implies a significant skill level and thorough understanding of the work. Team members attain mastery through an ongoing series of enactive experiences. Stajkovic and Luthans (1998) define *enactive mastery* as *succeeding in a challenging task*. But mastery is virtually unattainable without the interactions of the other three elements identified above.

To reach a level of mastery requires a coach who, in a Lean environment, is the first line leader. Both the first line leader and a team member's teammates provide the opportunity to learn by observing others (a powerful and effective human learning tool). But without some degree of motivation, those lessons won't show up in the changed behavior we seek.

"Motivation leads to higher self-efficacy, which leads to achievement and mastery, which leads to more motivation for more difficult or challenging tasks."

Motivation by itself comes in as many forms as there are people, but generally the things that motivate team members include achievement of the job itself, responsibility, advancement opportunities, rewards of some form or another, or recognition for the accomplishment (Herzberg, 1987). Motivation leads to higher self-efficacy, which leads to achievement and mastery, which leads to more motivation for more difficult or challenging tasks.

Meaningfulness and awareness are also inputs to mastery, allowing us to link satisfaction and self-efficacy. Those who derive meaning from their work are likely in principle to continue to accept challenging tasks. Awareness wrought by feedback from leaders with respect to a team member's performance not only contributes to satisfaction but is also a direct contributor to self-efficacy (Bandura & Locke, 2003). Bandura and Locke (2003) go on to conclude that even bogus information is used by individuals to make their judgments of self-efficacy, citing a study where individuals were lead to believe they were in a higher or lower percentile rank in (this case) pain tolerance. Those lead to believe they were in the higher percentile gained more tolerance for pain in subsequent experiments.

This may transfer as well to a workplace where leaders could provide performance feedback in a particularly positive light, without falsifying data, in an effort to boost performance in a subsequent activity. In other words, if we tell a team completing a Kaizen event that their results are comparatively high with respect to key measurements, then we could expect this team's efficacy toward subsequent events to be higher. The opposite should be true as well. If a team has a particularly bad experience with

a Kaizen event, they may not want to do another. I believe this is why Parker (2003) drew her conclusions associating Lean practices with lower self-efficacy.

"We want to design jobs with satisfaction and self-efficacy in mind, understanding that to get satisfaction, we as leaders need to provide for meaningfulness, awareness, and responsibility."

What a Lean organization seeks is a level of self-efficacy that encourages team members to automatically engage in problem solving and continuous improvement in the operations area. We need ***enhanced*** self-efficacy and systems to encourage team members to generate, test, and implement ideas for improving processes or methods in real time, while they are working. Responsibility, as an element of satisfaction, should also be relevant here.

True autonomy gives control of the work environment (responsibility for the performance of the system) to the individual team members. (See Toyota's quote again!) Providing team members with control over his or her work environment further enhances self-efficacy (Bandura, 1991; Wood & Bandura, 1989). Bandura and Locke (2003) cite studies from the 70's and 80's that lead them to conclude that people who believe they are in control of aversive events around them suffer less performance impairment than those who do not.

SYNTHESIS

If we now refer to Figure 2, we can summarize the requirements of a sustainable Lean system. We want to design jobs with satisfaction and self-efficacy in mind, understanding that to get satisfaction, we as leaders need to provide for meaningfulness, awareness, and responsibility. As we perform these newly designed jobs within a team environment, providing positive coaching instead of directive supervision, these satisfying jobs will lead to enhanced self-efficacy and higher motivation. From this state, we expect team members to take a greater interest in the work they do, resulting in persistence on the job and ideas for improvements, even in the face of resistance or obstacles. We expect the coupling of ideas and motivation to drive our team members to take initiative in the workplace, which will show up in suggestions for improvements and in direct improvements to our standardized work, reinforcing the team member's control of the environment and further enhancing self-efficacy. This is a self-generating system from this point on.

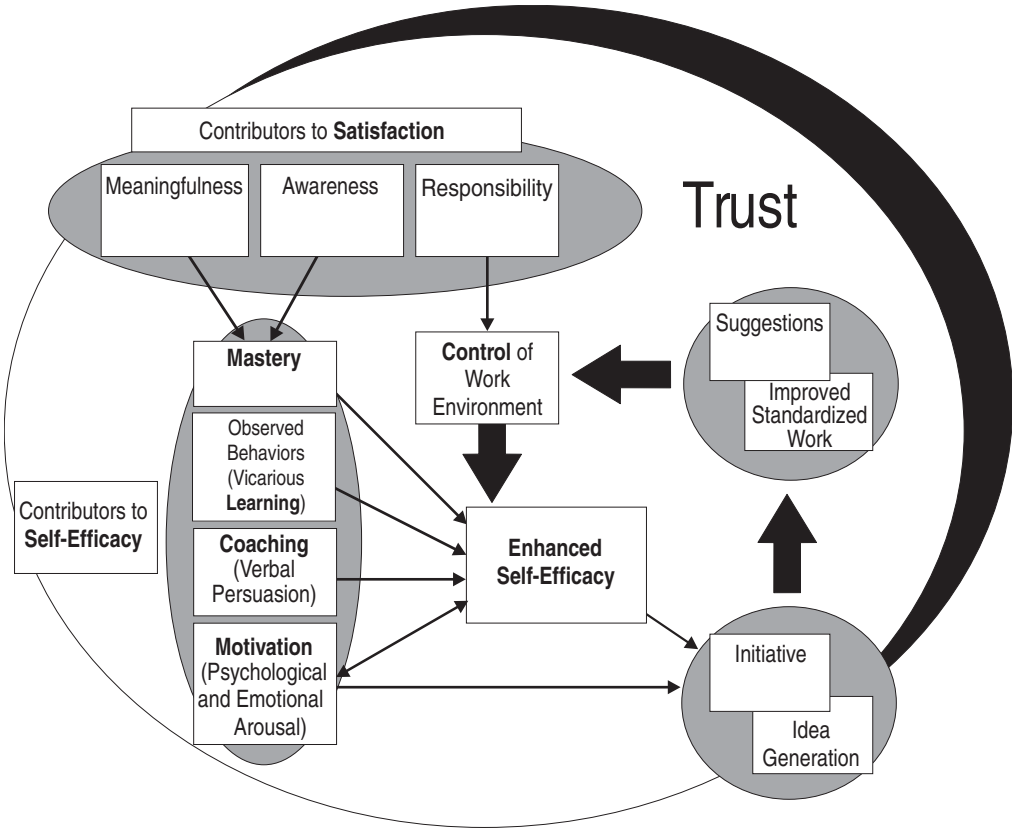

FIGURE 2. JOB DESIGN FOR SELF-EFFICIACY

The only remaining label on Figure 2 is *Trust*. Without trust between labor and management, between team members on teams, and between different functional divisions in the organization, none of this will work for long. Leaders must be honest and trustworthy at all times. But there is a brutal honesty that should be softened in respect to the team members, much the same as we tell our spouses that the ugly shoes they love the most look wonderful on them.

Building trust takes us right back to a focus on improving people and treating them with dignity and respect. Of all the tools available to companies wanting to become Lean organizations, I believe the two that will help them most in getting sustainable results are standardized work and suggestion systems.

STANDARDIZED WORK

Both the development and the enforcement of standardized work provide the opportunity to build trust in organizations. In a conventional organization, managers

or engineers typically design a particular job, prepare detailed work instructions, and send the instructions to the workplace expecting those instructions to work when applied. Many times, the manager or engineer is unfamiliar with the actual operations in the workplace, so the instructions seldom work without modification. Often, the modifications go unrecorded.

In a Lean organization, well-coached team members prepare the standardized work to reflect exactly what they do. Involving the workers and providing for their self-determination increases their level of trust of supervisors (Deci, Connell, & Ryan, 1987 in O'Reilly, 1991). In preparing the standardized work documentation, the team members, supported by leaders and supporting engineers or specialists, verify the best way to do a particular job and take the time to precisely record every activity required. This documentation becomes the basis for performance, or provides the daily performance expectations. Team members know immediately what they have to do, and how well they have to do it.

"Both the development and the enforcement of standardized work provide the opportunity to build trust in organizations."

In a continuous improvement environment, we require the team members to have the discipline to follow the standardized procedures without variance. Enforcing the standardized work by ensuring that the job is performed the same way every time is important for a number of reasons.

First, repetitious performance builds self-efficacy in the team member. The team member learns how to do the job better each time he or she performs, developing mastery of the process. Appropriate modeling by lower-level leaders enhances the learning experience and the level of trust between the team member and the leader (Stajkovic & Luthans, 1998). Positive results further reinforce the learning, encouraging the team member to repeat the desired behavior (Bandura, 1991; Gist & Mitchell, 1992).

Second, repetitious performance by either the primary operator or any other operator who steps in for him or her is likely to reveal problems in the design of the work. Steps that add time or unnecessary movement of the team member or his materials will become evident as each other team member attempts to achieve the standard identified in the standardized work. This, in addition to providing meaningfulness, is another benefit of job rotation.

The greatest value in standardized work, however, is in the freedom of the operators to solve problems, to find a better way to do the job, to test that better way, and then to implement the better way as the new standard. While there must be specific procedures to follow in changing the standardized work, the focus of control for the

operators is high, enhancing their efficacy and likelihood of success on the job (Wood & Bandura, 1989; Bandura, 1991). By not only allowing but also teaching and encouraging the team members to improve their processes, leaders further enhance their trustworthiness.

"The greatest value in standardized work, however, is in the freedom of the operators to solve problems, to find a better way to do the job, to test that better way, and then to implement the better way as the new standard."

Finally, by consistently enforcing the standard, leaders may reduce the perceptions of procedural injustice in the workplace.

SUGGESTION SYSTEMS

Another trust building tool for our stable organization is a suggestion system. Many organizations have provided suggestion programs for their employees with varying degrees of success. In a Lean organization, the primary objective of the suggestion system is not to solicit the participation of our team members by extracting their good ideas, but to provide a consistent vehicle for teaching individual problem solving skills. The suggestion system is a ***training tool*** for individual problem solving. To make this suggestion system work, leaders must commit to helping the team members complete a defined problem-solving process for every idea or suggestion they have. Leaders have to provide access to all the information a particular team member may need to support his or her suggestion. This might include access to engineering, or to finance and accounting to quantify the magnitude of the problem and the solution. Leaders commit to responding within 24 hours to every suggestion submitted and to approving the suggestions at the lowest level possible. The supervisor of the person with the suggestion should have the authority to approve the vast majority of suggestions after helping the team member complete the problem solving process and document the findings on the suggestion form. If we stay focused only on improving the process, we lose sight of the true value of the suggestion system—improving the people.

CONCLUSION

So, does focusing on improving people mean we don't measure productivity, cycle times, or costs? Absolutely not. Does focusing on improving people mean we stop doing Kaizen events, accelerated improvement workshops, Lean events, or action workouts (choose your favorite label)? Absolutely not. Focusing on people doesn't relieve us from the burden of getting results, so we will continue to set goals based on various measures.

What needs to be different, though, is how we view Kaizen events, suggestion systems, and job design. In a conventional organization, these three activities focus on getting things from the employee (improved productivity, ideas, work) rather than providing something to the employees. If we were to view them instead as tools for improving people, these become learning activities and provide skills and opportunities to employees. Results are still important. But even more important is developing in the workforce the skills needed to sustain improvements. Focus on the people and the results will follow. Focus on the results, and you'll have the same troubles as everyone else—poor follow-up, lack of interest, no ownership of improvements, diminishing productivity. What really needs to be different is attitude.

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