Quality Improvement as Organizational Learning

Amy Edmondson, PhD
Novartis Professor of Leadership and Management

Quality Colloquium

August, 2007

What does it mean for an organization to learn?

A learning organization continuously improves its processes and results, through ongoing efforts to improve shared knowledge and understanding.

Where is organizational learning needed?

To improve Patient Safety in a tertiary care hospital

To develop new strategy in a top management team

To raise student achievement in a school district

Organizational learning is essential when (a) solutions are not known in advance, (b) knowledge changes rapidly and (c) people must collaborate to accomplish and improve core tasks…

A Dynamic Environment: Health Care Delivery

Demand for Care

- Aging population
- Increase in chronic disease

Supply of Caregivers

- Shortages of MDs and RNs
- Shortages of specific specialties (notably, gerontology)

A Dynamic Environment: Health Care Delivery

Knowledge Explosion

- 30,000 new references in Medline each month
- Articles published/year from RCTs:

  100 in 1966

  Over 10,000 in 1995

- FDA activity

  Over 5,000 device applications per year

  In 2002: approved 78 new drugs, 17 new molecular entities, 152 new uses for already approved drugs and 321 generic equivalents

A Dynamic Environment: Health Care Delivery

Increasing specialization

- Growing number of Boarded Medical Specialties
  - *1927: 2*
  - *2000: 124*

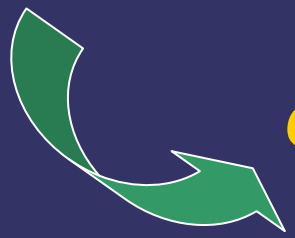
…bringing irreducible interdependence

- Shifting ratio of *physicians* to *non-physician care providers*
  - *1900: 1 to 3*
  - *2000: 1 to 16*

Organizational Implications of Trends

Individual caregivers must learn continually

and teams of caregivers must learn



Collective learning has become a necessity in health care delivery

*Health care teams and organizations must **learn** - not just change or improve - for patient care to be safe, effective and efficient*

How is organizational learning different from change management?

Classic Change Management

Adapted from: John P. Kotter, “Leading Change: Why Transformation Efforts Fail,” *Harvard Business Review* 73(2) (1995): 59-67

Phase One: Getting Started

1. Create a sense of urgency
2. Create a vision of what the organization will become
3. Form a change leadership team

Phase Two: Involving Everyone

4. Communicate the vision often, in a variety of ways
5. Empower others to take action on the vision
6. Inspire and celebrate small wins

Phase Three: Improvement and Stabilization

7. Keep interest and effort focused on further improvements
8. Institutionalize new approaches in the culture

Basic Model

Unfreezing --- **Change** --- Refreezing

Underlying Assumptions of Change Management

- We know today what will be needed to be successful tomorrow.
- We can develop a plan with realistic targets and deadlines to get us there.
- Achieving the change goals is primarily a matter of engaging and sustaining employee effort.

Let's look at a case study where the first assumption didn't hold…

Change Management: A Case Study

A new Patient Care Delivery Model (PCDM) at MGH

- Initiated by SVP of Nursing, late 1990s
- Change task allocation
  - *lower skill tasks to lower skill workers*
- Simplify -- fewer roles, broader tasks:
  - *from 15+ distinct roles to 3 roles working in RN led teams*
    - Patient Care Associates (PCAs) assist nurses in clinical and dietary services
    - Operations Associates (OAs) take on unit clerical responsibilities
    - Unit Service Associates (USAs) undertake other services
- Goals
  - *Greater simplicity, flexibility, and cost efficiency in staffing*
  - *Higher job satisfaction*
  - *Lower coordination costs and bureaucracy*
  - *Better quality*

The Change Process at MGH

Starts with a Charismatic Leader

- Articulates a vision and creates a change team
- Team formulates a new model, with help from consultants
- Focus groups & extensive communication to sell the change
- Pilot the model
- Make changes to improve the model
- Implement carefully planned, staged roll out of the model
- Roll out is completed, roughly as planned…

Basic Model

Unfreezing --- **Change** --- Refreezing

What Happened?

"I observed the new teams and didn't like what I was seeing. I saw frantic looks in the nurses' faces. They were trying to intervene on behalf of the patient, to do the right thing, but the stress that they carried into the room had the potential to be transmitted. The look on nursing assistants' faces was different. It was as if I was observing a different unit: some were relaxed, the dialogue was casual and they didn't appear busy. And while they did not appear busy, some appeared angry. That's when I decided we needed … to get feedback from them. Through my personal observations and my own experience with patient care, I said, 'Something is wrong here.'"

Jeanette Ives Erikson, SVP, Nursing, October 1997

Yes, behavior is hard to change, but, that was not the explanation for the failure…

Why?

"...the patient acuity level had increased dramatically in three years. .. a 30% decrease in [less sick] patients, and a 15% increase in the sickest patients.

The patients who would have been in the ICU in '94 were now in general care units; the patients who'd been in general care didn't even show up in acuity data; they were no longer admitted as inpatients. Meanwhile, the ICU patient acuity was much higher.

And, despite the consultants' predictions that our patient census would decrease, we were actually seeing an increase in our annual admissions…"

Jeanette Ives Erikson, SVP, Nursing, November 1997

Diagnosing the Failure

The External Environment Changed Dramatically

- MGH patient population became sicker
  - *more costly to handle, more RN-intensive tasks*
- While Length of Stay (LOS) became shorter
  - *implies less routine work, more skilled work, more RN-intensive*

Management Challenges Also Underestimated

- Busy RNs lacked management skills (and time to learn them)
- Model (PCDM) breaks down in higher acuity context
- Skilled labor shortages make new jobs harder to fill than anticipated

Underlying Assumptions of Change Management

☒ We know today what will be needed to be successful tomorrow…

☑ We can develop a plan with realistic targets and deadlines to get us there…

? Achieving the change goals is primarily a matter of promoting employee effort…

Are there any change efforts for which these assumptions hold in hospitals?

A Change Spectrum

Case studies of 10 change efforts within NICU collaborative

- e.g., Hand hygiene (3 sites)
- Delivery room processes for neonates (1 site)
- Maternity Department – NICU relationship (1 site)

Some similarities

- All project teams were multidisciplinary
- All started with a review of the literature
- All projects motivated by perceived performance gaps

"Once we saw how we stood up compared to other centers in the database, it was eye-opening. We couldn't deny. The data just became more and more clear. We were an outlier unit on several parameters that were important. Once we acknowledged and did some soul-searching and recognized that, in fact, there really was a problem, it wasn't too hard to make the jump to putting all of our resources to fixing the problem." - Neonatologist, NICU 3

Case 1: Hand hygiene project

- Existence of best practice: literature review revealed scientific evidence (e.g., jewelry/artificial fingernails)

  "We found articles on handwashing specific to NICU, which would include the actual technique, handwashing agents, wearing gloves, water-less, alcohol based gels. We researched articles, we shared all of the information we got. -CNS 1, NICU 4

- It's easy to envision the organization in its new state

- Communication of best practice promotes caregiver effort to change behavior

  "If you're truly going at it from evidence-based practice, there are few people who in the long run will refute what you're doing. [Because] The staff's commitment to do the best thing for the babies is so strong, it outweighs any personal issues." *-Nurse Manager, NICU 4*

Case 2: Delivery room processes for neonates

Catalyst: new staff member questions current processes

Search for best practice: literature review reveals individual processes, but no evidence on effective ways to combine processes

> *"We made our best guess using the [existing bits and pieces of] evidence to figure out how we could implement it in a way that was reasonable for our people and then we monitored outcomes continuously."-Neonatologist, NICU 3*

Improvement strategy: experiential and iterative

> *"We used the isolation room and rubber ball [to simulate a neonate], and we tried everything. We tried a dry-run to see what it would be like to try this and that. We fiddled around with how we were going to do it. We tried lots and lots of ways, practicing."* *- Neonatologist, NICU 3*

Case 3: Maternal & Newborn Departments_

Catalyst: a respected OB nurse is dissatisfied with her team's interactions with the NICU team at the same time as a joint staff meeting identifies the same issue

Search for best practice: … little literature on the topic

Improvement strategy:

(1) NICU-OB brainstorming session to identify 3 priority areas

(2) create three cross unit project teams;

(3) each takes an exploratory, iterative approach

Spectrum from High to Low Prior Process Knowledge

	Practice Implementation	Practice Modification	Practice Creation
Representative Case	Hand hygiene	Delivery room processes	Maternal & Newborn collaboration
Existence of best practice?	BP exists, Challenge is buy-in for implementation	Less clear BP, but some evidence enables starting point	Best Practice does not exist
Easily codified?	Yes	Some parts yes, others no	No
Context dependent?	No	Yes	Highly!
Change Activities	Identify and copy existing practices (e.g. literature reviews)	Mix of identifying existing practices and creating new practices (e.g. literature reviews *plus* dry-runs)	Primarily creating new practices (e.g. brainstorming and trying new behaviors)

Challenging Change Management Assumptions

- We know today what will be needed to be successful tomorrow.

- We can develop a plan with realistic targets and deadlines to get us there.

- Achieving the change goals is primarily a matter of engaging and sustaining employee effort.

Challenging Change Management Assumptions

- We know today what will be needed to be successful tomorrow.
- We can develop a plan with realistic targets and deadlines to get us there.
- Achieving the change goals is primarily a matter of promoting employee effort.

- We can make an educated guess today about what will be needed to be successful tomorrow.
- We can experiment to reduce uncertainty as we move forward, allowing us to update interim goals and processes as time goes on.
- Implementing an effective learning process is primarily a matter of reducing employee fear.

Change Management
(High process knowledge)
Hand washing

Leading Organizational Learning
(Low Process Knowledge)
Unit to unit coordination

Different Organizational Contexts for Change

Implementing best practices

- Hand washing
- Best practice implementation in suburban water utility operations

Modifying practices

- Delivery room procedures and hand-offs
- Learning a new minimally invasive cardiac surgery technique
- Increasing patient safety or clinical care quality

Creating new practices

- Developing collaboration between two clinical units
- Innovating to offer new strategic design services at IDEO

Assumptions Underlying Organizational Learning

- We can make an educated guess today about what will be needed to be successful tomorrow.
- We can experiment to reduce uncertainty as we move forward, allowing us to update interim goals and processes as time goes on.
- Implementing an effective learning process is primarily a matter of reducing employee fear…

Make it Safe to Learn

Where would you choose to be admitted?

Work unit	Error rate
Memorial 1	23.68*
University 1	17.23
University 3	13.19
Memorial 2	11.02
Memorial 4	8.6
Memorial 5	10.31
University 2	9.37
Memorial 3	2.34

* preventable and potential adverse drug events (ADEs) per 1000 patient-days

Psychological safety

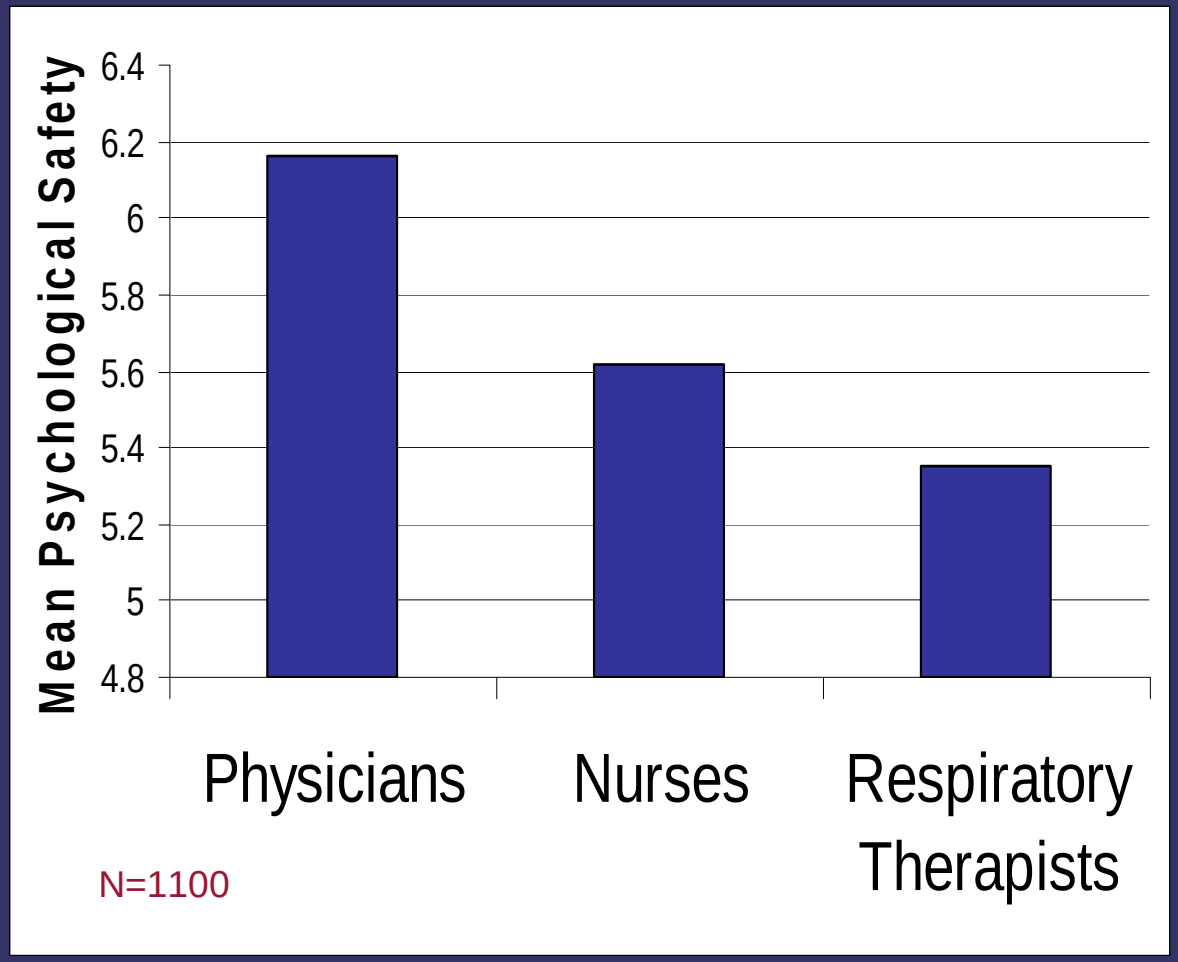
Psychological safety is a belief that one will not be punished or humiliated for speaking up with ideas, questions, concerns, or mistakes.

A shared sense of psychological safety is a critical input to an organization's ability to learn (improve, innovate)

What gets in the way of experiencing psychological safety at work?

Status and Psychological Safety in the ICU

Role-based Status
explains differences in self-reported Psychological Safety



Effects of status vary across organizations

- In some hospital units, status had no effect on psychological safety
- In others, the gaps were far larger than the average gaps
- Therefore, even though status had an effect on psychological safety that was easily discerned in the population, *how status was handled* varied widely
- …and that made all the difference

We called it *inclusive leadership…*

Effects of status vary across organizations

- In some hospital units, status had no effect on psychological safety
- In others, the gaps were far larger than the average gaps
- Therefore, even though status had an effect on psychological safety that was easily discerned in the population, *how status was handled* varied widely
- …and that made all the difference

Inclusive leadership is

Accessible

Actively invites input

Models fallibility

Illuminate the Costs of Workarounds

Problems as Learning Opportunities

How do Nurses Solve Problems in Hospitals?

- 239 hours of detailed observation of nurses by HBS doctoral student Anita Tucker
- Nine hospitals (selected for excellence), 26 nurses

Nurses are well aware of the *problems* they encounter

- Problems are obvious and frustrating
- About a problem an hour

Two qualitatively distinct responses

- ***First order problem solving***

  Does what it takes to continue patient care
- ***Second order problem solving***

  Does what it takes to continue patient care AND undertakes effort to alert others and/or identify and correct causes of problem

Only _ % of problems are responded to with second order problem solving

Why?

Why Is First-order Problem Solving Dominant?

Drivers

- Efficiency concerns
- Professional Norms
- Empowerment

Reinforcers

- Efficacy
- Gratification

Gratification from work-arounds

"Working around problems is just part of my job. By being able to get IV bags or whatever else I need, it enables me to do my job and have a positive impact on a person's life – like being able to get them clean linen. And I am the kind of person who does not just get one set of linen, I will bring back several for the other nurses."

- Oncology floor nurse

Gratification from work-arounds

"Working around problems is just part of my job. By being able to get IV bags or whatever else I need, it enables me to do my job and have a positive impact on a person's life – like being able to get them clean linen. And I am the kind of person who does not just get one set of linen, I will bring back several for the other nurses."

- Oncology floor nurse

Unintended Consequences

1. Work-arounds take time
   - an average of 33 min per shift

2. Likelihood that the organization “learns” from the problems is low
   - Efficacy of first order problem solving proves elusive in the long run

3. Burnout

Burnout from work-arounds

"I put my heart and soul into my role as a nurse and my reward is patient satisfaction. Therefore I would never quit my job. **I do feel that sometimes I am working with one hand tied behind my back.** Tied by lack of equipment, supplies and auxiliary help. My job is physically demanding, so much so **I don't know how I will be able to continue until retirement**."

Institute and Support Team Learning

The (Team) Learning Process

Ideas

- Surface, collect, compare

Decisions

- Identify ideas to pursue, when, where, with whom…

Action

- Deliberately treat experience as experiment

Reflection

- Evaluate results: What did we learn? What should we change? Start over.

Leaders can institute team learning processes into the organization… to enable continuous adaptation

A Hospital that Learns: A Case Study

A Care Design System at **Intermountain Health Care**

Systems that Design and Monitor Care

- **Guidance Councils** – Senior-level experts working in interdisciplinary teams to review the literature and design disease specific protocols
- **Implementation projects –** interdisciplinary teams that implement guidance council recommendations
- Incentive systems -- to encourage compliance with protocols
- **IT Systems** – Technology enabled guidelines that facilitate and track care delivery

A Hospital that Learns: A Case Study

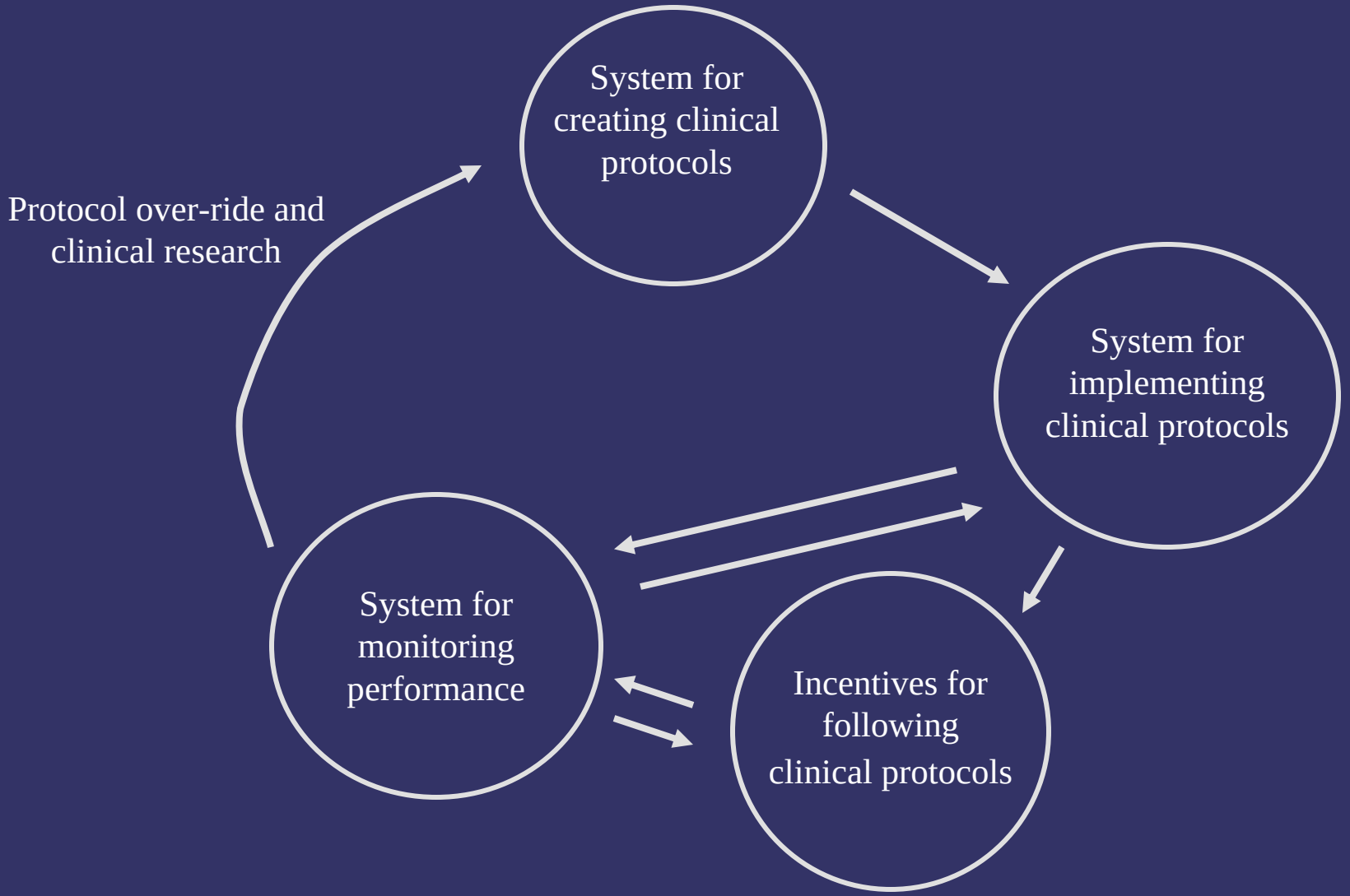
A Learning Engine at **Intermountain Health Care**

3 activities that facilitate organizational learning

- **Protocol over-ride** – "Design for the common, and manage uncommon cases individually"
- **Clinical Practice research projects** – Improvement projects, staffed by the Institute for Health Care Delivery Research
- **Ongoing work by Guidance Councils –** interdisciplinary teams that review the performance of the protocols, the reasons for physician over-ride, and the latest medical literature, and work together to learn and to modify the protocols accordingly

It requires extraordinary leadership and commitment to create and sustain the learning system: Brent James' vision and discipline

A System For Learning



Summary

- Classic Change Management advice falls short in highly dynamic contexts
  - Yesterday's plans are quickly outdated
  - Encouraging effort isn't enough. Reducing fear is the key.
  - *Organizational learning provides a path forward…*
- Organizations "learn" when constituent teams learn
- Teams learn through an iterative and reflective process

  generating ideas, trying things out, reflecting on their actions, suggesting changes, and trying again…
- This requires that team members experience psychological safety

  together with a compelling purpose for change
- This rarely happens spontaneously…
  - *It takes leadership*

Parting Thoughts

Managing People
in the Learning Organization

A Different Way of Thinking about Work*

"James Wiseman remembers the moment he realized that Toyota wasn't just another workplace but a different way of thinking about work… He joined Toyota's Georgetown plant in October 1989 as manager of community relations. Today, he's VP of corporate affairs for manufacturing in North America.

In his thus far successful career (with prior factory manager jobs in several industries) Wiseman recalled that he … had the attitude that when you achieved something, you enjoyed it."

He recalls being steeped in the American business culture of not admitting, or even discussing, problems in settings like meetings.

* Source: Charles Fishman (2006). No Satisfaction at Toyota. *Fast Company, 111: p.82.*

A Different Way of Thinking about Work

In Wiseman's early days, Toyota's Georgetown, KY plant was run by Fujio Cho, now the chairman of Toyota worldwide. Every Friday, there was a senior staff meeting. "I started out going in there and reporting some of my little successes," says Wiseman. "One Friday, I gave a report of an activity we'd be doing…and I spoke very positively about it, I bragged a little. After two to three minutes, I sat down.

"And Mr. Cho kind of looked at me. I could see he was puzzled.

He said, 'Jim-san. We all *know* you are a good manager, otherwise we would not have hired you. But please talk to us about your problems so we can work on them together.'"

Wiseman said it was like a lightening bolt. "Even with a project that had been a general success, we would always ask, 'What didn't go well so we can make it better?'"

Rethinking the ideal employee

When the employee faces:	Ideal employee behavior
Problems/Small Failures	Adjusts and improvises without bothering managers or others
Others' mistakes	Seamlessly corrects for errors – without confronting others about their error
Own mistakes or problems	Allows impression that s/he never makes mistakes
Subtle opportunities for improvement	Remains committed to organization and to its processes – understands the “way things work” around here

The “ideal employee” inhibits organizational learning

When the employee faces:	Ideal employee behavior	The observant questioner
Problems/Small Failures	Adjusts and improvises without bothering manager	***Noisy complainer***: Remedies immediate situation but also lets managers and those from whom supplies are received know when the system has failed.
Others' mistakes	Seamlessly corrects for errors of others – without confronting the person about their error	***Nosy interrupter***: Asks what others are doing and lets others know they have made a mistake with the intent of creating learning, not blame
Own mistakes or problems	Allows impression that s/he never makes mistakes	***Self-aware error-maker***: Lets people know s/he has made a mistake so everyone can learn. Communicates openness to hearing about the errors discovered by others.
Subtle opportunities for improvement	Remains committed to organization & its processes – understands the “way things work” around here	***Disruptive questioner who wont let well enough alone***: Questions “why do we do things this way? Is there a better way of providing this service?”

Selected References

Edmondson, A C., Bohmer RMJ, Pisano GP (2001) Speeding up team learning. *Harvard Business Review*, September-October.

Edmondson, A. (1999) Psychological safety and learning behavior in work teams. *Administrative Science Quarterly (44),* 350-383.

Edmondson, A. (1996). Learning from mistakes is easier said than done: Group and organizational influences on the detection and correction of human error. *Journal of Applied Behavioral Science, (32) 1. 5-28*

Nembhard, I. and Edmondson A.C. (2006). Making it safe: The effects of leader inclusiveness and professional status on psychological safety and improvement efforts in health care teams, *Journal of Organizational Behavior, 27, 7: 941-966.*

Kotter, J.P. "Leading Change: Why Transformation Efforts Fail," *Harvard Business Review* 73(2) (1995): 59-67