Lean Aerospace Initiative

Growing the Lean Community
An LAI Plenary Conference

Creativity and Adult Learning Principles
April 10, 2001

Presented By:
Joel Cutcher-Gershenfeld
MIT

Creativity and Adult Learning Principles

Who: Participants in LAI Lean Learning Break-out Session

What: Presentation and exercises on adult learning principles

When: Tuesday, April 11, 2001

Where: LAI Plenary, Cambridge, MA

Why: Lean Learning depends on an understanding of adult learning principles

Expected Outcomes:

➢ **Understanding of adult learning principles**

➢ **Exercises and activities useful to explore adult learning principles and foster creativity**

➢ **Introduction**

    ➢ **Overview and expectations (2-3 min.)**

➢ **Adult Learning Principles and Training Delivery**

    ➢ **Selected adult learning principles (7-10 min.)**

    ➢ **Customer pull and training delivery (5-7 min.)**

➢ **Creativity**

    ➢ **Core concepts (2-3 min.)**

    ➢ **Creativity exercises and applications (15-20 min.)**

➢ **Conclusion**

    ➢ **Action implications (3-5 min.)**

Adult Learning Principles and Training Delivery

Form small groups of 2-3 people – you will be assigned as either a "mass production" or a "lean enterprise" group

➢ **Mass production groups:**

- ➢ **Describe the adult learning associated with a mass production system**

- ➢ **What underlying assumptions are being made about adult learners in this case?**

➢ **Lean Enterprise groups:**

- ➢ **Describe the adult learning associated with a lean enterprise system**

- ➢ **What underlying assumptions about adult learners are being made in this case?**

➢ **Learners bring life experience**

  ➢ **The goal is not to "teach," but to provide frameworks and exercises that provide new insights or perspectives into existing experience**

➢ **People learn in different ways**

  ➢ **Provide a mix of presentation, discussion, exercises – with visual, auditory, and experiential learning**

➢ **Lessons must be practical and useful**

  ➢ **Ensure the sessions are concise and accessible – Provide practical examples and drive follow-on applications**

➢ **Learning should be fun and engaging**

  ➢ **Never use humor . . . Never ask people to analyze situations or data . . .**

"It was Aristotle who said excellence is not a singular act, but a habit. You are what your repeatedly do."

➢ *Shaquille O'Neal, MVP Acceptance Speech – 1999-2000 season*

➢ **What would a "pull" training system look like?**

➢ **What types of training and organizational learning can be readily run on a "pull" basis?**

➢ **What types of training and organizational learning are difficult to run on a "pull" basis?**

➢ **What are the implications of this analysis?**

web.mit.edu/lean

Creativity

➢ **What are examples of some of the most creative ideas of the 20th century?**

  ➢ **What do these ideas have in common?**

  ➢ **What is do these ideas not have in common?**

  ➢ **Why might we ask both questions?**

➢ **What roles does creativity play in the aerospace industry?**

➢ **Why are children naturally creative?**

➢ **What happens to that creativity as we become adults?**

    ➢ **What do we lose in this process?**

    ➢ **What do we gain?**

➢ **What are the implications?**

Barriers

➢ **Assumptions**

➢ **Routines/Habits**

➢ **Skepticism**

➢ **Resources**

➢ **Rules**

Enablers

➢ **Assumptions**

➢ **Routines/Habits**

➢ **Skepticism**

➢ **Resources**

➢ **Rules**

How can this be so? What are the implications?

Creativity Process

- ➢ **Agree on the FOCUS**

- ➢ **Explore OPTIONS**

- ➢ **Organize the ideas into CATEGORIES**

- ➢ **Explore gaps and patterns to deepen UNDERSTANDING**

- ➢ **SELECTION of implications and actions that might not otherwise have been considered**

What pattern do you notice regarding these steps in the process?

➢ **Goal: Demonstrate "out of the box" thinking**

➢ **Process:**

⤤ **Teams of 3-5 people**

⤤ **Brainstorm list of creative ways that a piece of paper can be used to illustrate the principles of flight**

⤤ **Select the option most likely to elicit "oos" and "ahs" of appreciation from others in this room**

⤤ **Prepare a presentation/demonstration on this option**

⤤ **Present your idea to the full group**

⤤ **Assess the implications of this exercise**

➢ **What are examples of applying adult learning and training design principles to lean learning?**

➢ **What are examples of not taking into account adult learning and training design principles when it comes to lean learning?**

➢ **How do you interpret these data (from both questions)?**

➢ **Goal: Think creatively about the future of the aerospace industry**

➢ **Process:**

    ↗ **Teams of 2-3 people**

    ↗ **Brainstorm list of unique capabilities of this industry and its people**

    ↗ **Brainstorm creative ways to target or channel the talent and energy**

    ↗ **Organize these into categories -- notice patterns**

    ↗ **Select ideas that might be presented to senior leadership**