Organizational Learning

15.301 Managerial Psychology
John S. Carroll
How Do People Learn?

- Trial and error (Law of Effect)
- Practice, practice, practice
- Rote memorization (declarative knowledge)
- Vicarious learning (role models)
- Imaginative rehearsal (simulation)
- “Another name for learning is failure”
- “Knowledge is what you get just after you need it”
How Do Organizations Learn?

(D. Kolb et al.)

- More action
- More reflection

- Doing
- Reflecting
- Deciding
- Connecting

More concrete vs. More abstract
Many Labels For Learning

Innovation

Knowledge Management

Org’n Learning

Org’n Change

Quality Improvement

Training & Development
TMI As A Learning Failure

• Three Mile Island
  – ignorant of near misses at other plants
  – previous similar errors at TMI; no steps taken
  – engineers’ critique not acted on

• Utility President Herman Dieckamp:
  “To me that is probably one of the most significant learnings of the whole accident [TMI] the degree to which the inadequacies of that experience feedback loop... significantly contributed to making us and the plant vulnerable to this accident”
A Learning Failure at NASA

- What was learned from Challenger (1986)?
  - Pressures for production outweighed expertise
  - Normalization of risk (accepting known problems)
  - Back to business as usual; “didn’t get it”
- What happened with Columbia (2003)?
  - More production pressure
  - Leadership that tolerated no dissent
  - Lack of independent voice for safety
  - Safety/quality people are promoted: message?

(From Columbia Commission report, 2003 and Leveson et al, 2004)
Exercises

• **Jeweler’s Problem**: A woman buys a $78 necklace at a jewelry store. She gives the jeweler a check for $100. Because he does not have the $22 change, he goes to another merchant next door. There he exchanges the woman’s check for $100 in cash. He returns and gives the woman the necklace and her change. Later the check bounces and he must repay the other merchant. He originally paid $39 for the necklace. What is his net cash (out-of-pocket) loss?

• **Horsetrading Problem**: A man buys a horse for $5000, and sells it for $6000. He then buys back the same horse for $7000 and sells it for $8000. What is his total profit or loss from these transactions?
Corrective Action Process

- Condition identified
- Triage
- Investigation
- Solution development
- Immediate responses
- Tracking and trending
- Effectiveness review
- Action implementation
Blame The Troops

- During an outage, a design modification was installed to replace old electromechanical indicators with new computer-based indicators in a nuclear power plant control room
- Operators were trained and told “there is nothing you can do to harm the new system”
- A few months later, an operator entered improper keystrokes and the computer system froze
- Root causes were traced to operators and designers
- Operators were disciplined
- No one in engineering is “singularly responsible”
Fixes That Fail

Problems
  \[\text{Add complexity}\]
  \[\text{Write detailed procedures}\]
  \[\text{Discipline workers}\]
  \[\text{Reduce trust}\]
  \[\text{Less flow of information}\]

- Slow work; Alienate workers

- Regulatory attention
- Report requirements; Lower bond rating
- Resource availability

The Capability Trap

No credit for fixing problems that never happened.

Repenning & Sterman, California Management Review, 2001
Airline Industry Learning

- Safety Reporting System developed to allow pilots (and others) to report problems in a confidential way
- Move away from “pilot error” to understand work systems, career systems, etc.
- Development of Cockpit Resource Management training, now used throughout aviation and increasingly in hospital O.R.s
Health Care Frontier

- IOM reports document 44,000+ preventable deaths per year; medication errors alone contribute to 7,000 deaths annually.
- Some mundane problems, e.g., “wrong site” procedures that we know how to fix, e.g., “sign your site”, yet they persist.
- And many other problems seem more complex, with unknown fixes.
Strategy That Wouldn’t Travel

• For Monday, read the case (Beer, 1996)
• What worked in Wichita? Why?
• Use the three lenses, Sloan Leadership Model, and other course concepts to analyze what happened in Wichita
• For Wednesday, re-read the case
• What went wrong in Lubbock? Why?
• This is an opportunity to apply what you have learned!
• I will be cold-calling both days, so be prepared!