

Systems Thinking & Problem Solving: (Understanding Our Most Important Messes) LO Disciplines, Disabilities, & Learning in & about Complex Systems

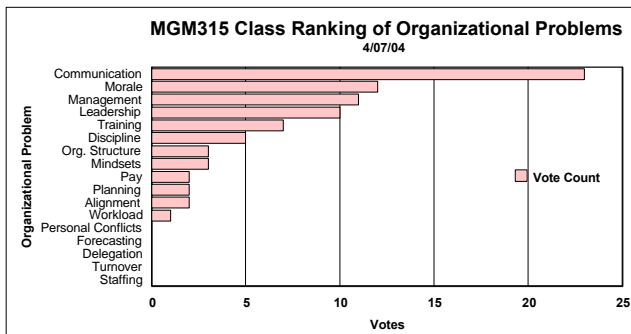
MGM315 4/14/04

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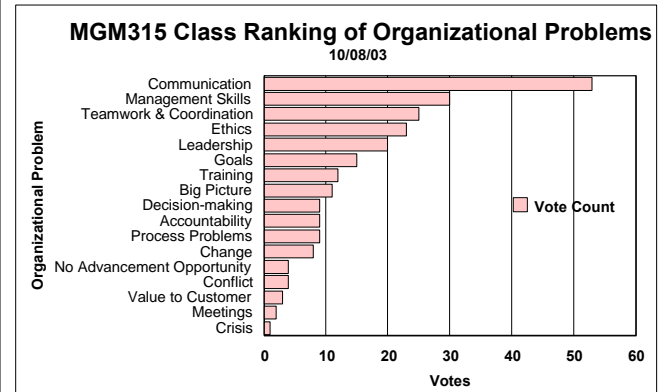
Outline

- Organizational Problem Ranking
- Human Behavior is Hardwired
- Learning Disabilities
- The Five Disciplines
- Scott Peck's Disciplines
- Conclusion

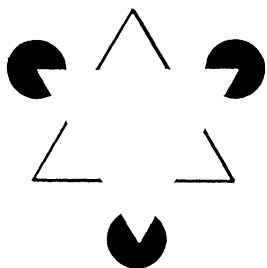
MGM315 Organizational Problem Pareto 4/07/04



MGM315 Organizational Problem Pareto 10/08/03

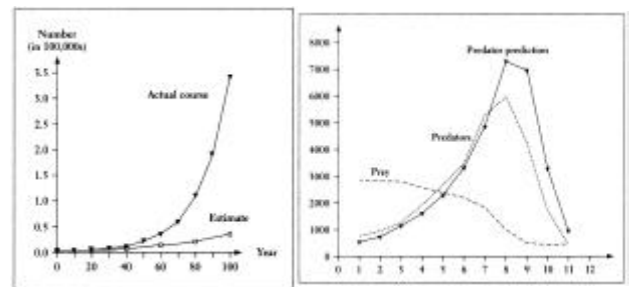


Kanizsa triangle



- Clumps of neurons actively construct our view of the world
- ... before the view reaches our conscious awareness
- Useful for seeing our prey (or a predator) in the bush
- This is only the beginning !!!

Errors in Estimating & Predicting



Estimating Exponential Growth

Predicting Predators Population

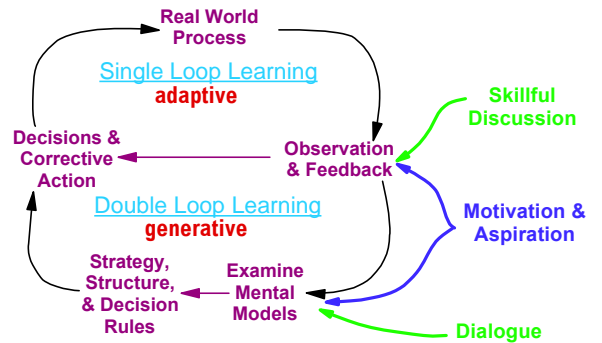
The Logic of Failure, Recognizing and Avoiding Error in Complex Situations by Dietrich Dörner, 1996

Human Behavior is Hardwired

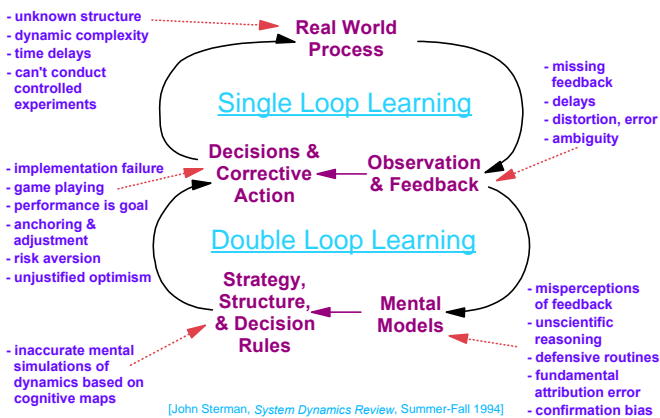
- "You can take the person out of the Stone Age, ... but you can't take the Stone Age out of the person."
- Homo Sapiens: 200,000 years ago
- Agriculture: 10,000 years ago
- Our instincts:
 - Emotions before reason
 - Loss aversion except when threatened
 - Confidence before realism
 - Classification before calculus
 - Gossip
 - Empathy and mindreading
- Our instincts fail us when the problems we face require different responses than our hardware provides.

Nigel Nicholson, "How Hardwired Is Human Behavior?", *Harvard Business Review*, Jul-Aug 1998

Single- and Double-Loop Learning

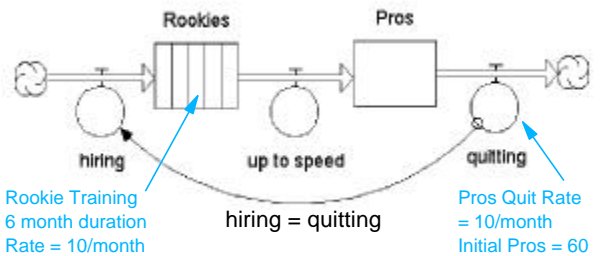


Barriers to Learning



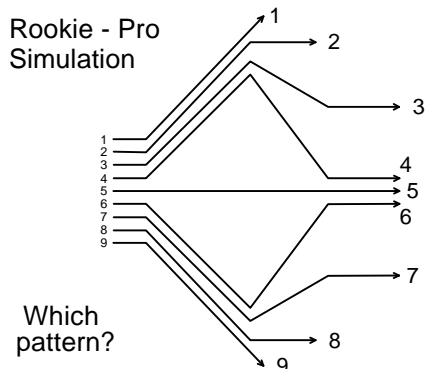
[John Sterman, *System Dynamics Review*, Summer-Fall 1994]

How Good is Our Intuition?



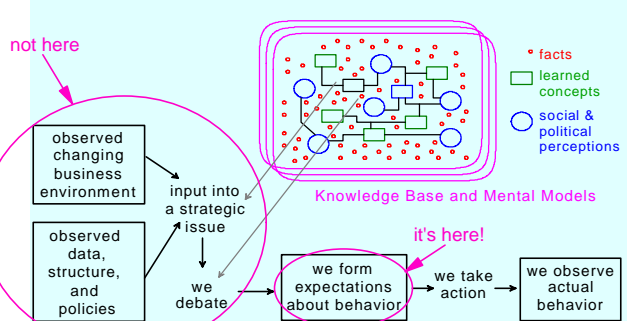
Question: If the "Pro Quit Rate" increases from 10 to 15/month, what will be the shape of the "Number of Pros" curve over time?

Which Pattern Will the Number of Pros Take Over Time?



Why don't things turn out the way we think they will more often???

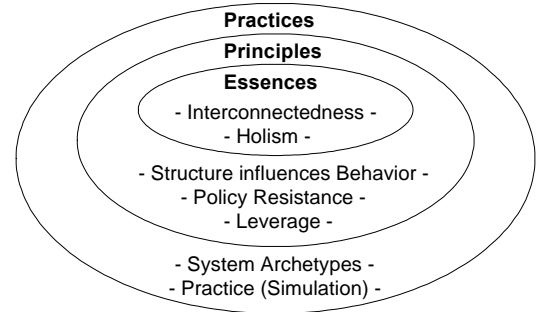
Where's the Problem?



The Five Disciplines

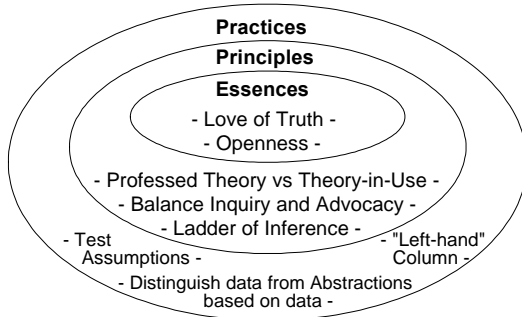
- Systems thinking
- Mental models
- Personal mastery
- Shared Vision
- Team Learning

Systems Thinking



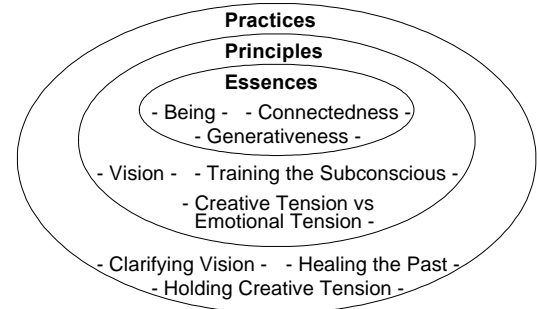
Peter M. Senge, *The Fifth Discipline*, 1990

Mental Models



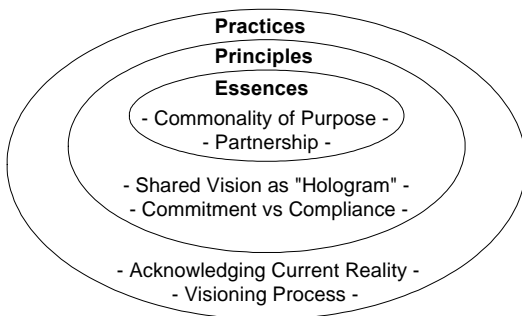
Peter M. Senge, *The Fifth Discipline*, 1990

Personal Mastery



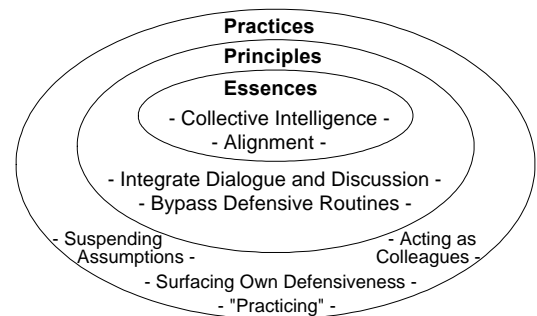
Peter M. Senge, *The Fifth Discipline*, 1990

Shared Vision



Peter M. Senge, *The Fifth Discipline*, 1990

Team Learning



Peter M. Senge, *The Fifth Discipline*, 1990

What is Discipline?

- Discipline is "a system of techniques of dealing constructively with the pain of problem-solving"
- -- instead of avoiding that pain --
- in such a way that all of life's problems can be solved."

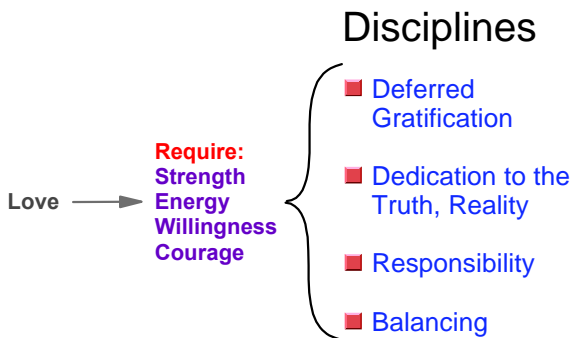
M. Scott Peck, *The Road Less Traveled*, 1978, p. 77

Why Wasn't It Called "The Fifth Habit"?

- "If an organization is to change the way its people think and act and interact, ... people must internalize a set of principles or disciplines that shape their reactions and govern behavior."
- "Habits are automatic and therefore **mindless**.
... **Disciplines are mindful.**"

Pascale, Millemann & Gioja, "Changing the Way We Change," *Harvard Business Review*, Nov/Dec 1997

Scott Peck's Disciplines



M. Scott Peck, *The Road Less Traveled*, 1980, p. 77

Conclusion

Systems Thinking: We make it look easy ... and it's fun, too!



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