Understanding Research Results through Complexity Science

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Primary Care Research Methods and Statistics Conference
1/23/10
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• Accepted for Publication

Journal of Evaluation in Clinical Practice
Previous Work

Two Ideas

• Organizational design as a verb – Weick (1993)
• Learning from samples of one of fewer – March, Sproull and Tamuz (1991)
Four Suggestions for Research Designs

• Anticipate change
• Include tension
• Capitalize on serendipity
• Use an “act then look” mind set
New Problem
Interpreting Research Observations

What are the

• Implications of observing relationships among diverse agents?
• Implications of observing relationships among agents that learn?
Agent Diversity

• Meaningfully different on important dimensions
• Multiple forms and at several levels
• Across roles and within roles

Can often generate creative responses
Problematic Practices

• Obscure diversity through grouping in “typical” categories – RNs, MDs, patients

• Averaging on easily identified variables – age, sex, disease

• Use of “normal distributions”; Gaussian models

Favoring similarity above diversity
Suggestions/Strategies

1. Pay attention to grouping agents in a variety of ways
2. Pay attention to results that reveal differences
3. Pay attention to the uncommon, unusual or atypical
4. Pay attention to both benefits and detriments of diversity
Learning Agents

• Agents process information and change their behavior
• Relationships facilitate learning
• Learn from samples of one
Problematic Practices

• Treat agents as static; treat the agent as being rather than as becoming
• Try to conduct research without disturbing the agents
• Patterns of learning are ignored

Favoring the present over the future
Suggestions/Strategies

1. Recognize the affect of learning on variables of interest
2. Account for the dynamics of learning
3. Expect agents to change between $t$ and $t+1$
4. Try to figure out how the research disturbed the agents
5. Observe unintended learning from interventions
Conclusions

- Check your assumptions about the nature of the world
- Pay attention to both structures and processes
- Learning can both increase and decrease diversity AND diversity can both increase and decrease learning