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DA 4302: COPING WITH WICKED PROBLEMS

“For every complex question there is a simple answer, and it is wrong.” *H.L. Mencken*

“The significant problems we face cannot be solved at the same level of thinking we were at when we created them. *Albert Einstein*

“True genius lies in the capacity for evaluation of uncertain, hazardous and conflicting information.” *Winston Churchill*

“Some problems are so complex that you have to be highly intelligent and well informed just to be undecided about them.” *Laurence J. Peter*

“In times of stress the natural human tendency is to find fault with someone else. We tend to take the problem personally, at an organizational level, and assume that the chaos we see is a result of incompetence or, worse, insincere leadership. Since our education and experience have prepared us to see and solve tame problems, wicked problems sneak up on us and create chaos. Without understanding the cause, there is finger-pointing instead of learning” *Jeff Conklin*

The "Secret Sauce": Herodotus tells us that the ancient Persians would make all major decisions while drunk, and then reconsider the decisions the next day while sober. If the sober decision agreed with the inebriated decision, they would go forward; if not, the process would be repeated.

AN UNSPEAKABLE horror gripped me. There was darkness; then a dizzy, sickening sensation of sight that was not like seeing; I saw a Line that was no Line; Space that was not Space: I was myself, and not myself. When I could find voice, I shrieked aloud in agony, “Either this is madness or it is Hell.” “It is neither,” calmly replied the voice of the Sphere, “it is knowledge; it is Three Dimensions: open your eye once again and try to look steadily.” I looked, and behold, a new world. *Edwin A. Abbott, Flatland, 1884.*

COURSE DESCRIPTION:

This interdisciplinary seminar focuses on a class of problems—“wicked problems” or “messes.” Evidence of wicked problems comes from experts in many quarters—product designers, software engineers, planners, program managers and policy makers. All warn that traditional methods of problem solving are not working and no apparent alternatives are in sight. Wicked problems have the following characteristics: 1) there is no agreement about “the problem.” In fact, the formulation of the problem IS the problem. 2) There is no agreement on a solution. In actuality, stakeholders put forward many competing “solutions” none of which have stopping rules to determine when the problem is solved. 3) The problem solving process is complex because constraints, such as resources and political ramifications, are constantly changing. 4) Constraints also change because they are generated by numerous interested parties who come and go, change their minds, fail to communicate, or otherwise change the rules by which the problem must be solved. Using case studies, readings and actual dilemmas confronting military officers and government officials, students learn to recognize when they are in wicked problem territory and what coping strategies and tactics might be useful in this context.

We divide the course into two sections. The first opens with a short introduction to traditional definitions of problems and problem solving. Against this backdrop, we then briefly introduce the concept of wicked problems and illustrate with various readings and cases how experts in the literature define the term. At the end of section one, each student identifies the wicked problem territory he/she wishes to focus on for the course. Students are required to pick a topic related to military issues.

Section two introduces four approaches to cope with wicked problems: The Creative Approach; the Entrepreneurship and Innovation Approach; the Systems Thinking and Complex Adaptive Systems Approach; and the Collective Learning and Collaboration Approach. Although many believe that wicked problems cannot be solved, our going in assumption is that each of these four approaches has merit and can improve our problem solving abilities even when we find ourselves trapped into wicked problem territory. Students explore how each of the four approaches could inform and improve problem solving in their domain of interest.

COURSE READINGS:

Purchase:

Adams, J.L. 2001. *Conceptual Blockbusting: A Guide to Better Ideas*. Cambridge, MA: Perseus Publishing.

Anderson, V. and Johnson, L. 1997. *Systems Thinking Basics: From Concepts to Causal Loops*. Waltham, MA: Pegasus Communications, Inc.

Nagl, J.A. 2005. *Learning to Eat Soup with a Knife: Counterinsurgency Lessons from Malaya and Vietnam*. Chicago: University of Chicago Press.

Roberts, N.C. and King, P.J. 1996. *Policy Entrepreneurship and Innovation*. San Francisco: Jossey-Bass. (This book may be out of print, but you can purchase used copies through Amazon.com or I will have it duplicated if necessary).

Straus, D. 2002. *How to Make Collaboration Work*. San Francisco: Berrett-Koehler.

Others Readings: In Blackboard

Note to PhD Students:

PhD students will be expected to read a public document related to some very wicked problem (could be on any number of topics), prepare a review of it for the purpose of submitting it to a journal—*Public Administration Review*, Public Documents Section. See me for more details on how to prepare your submission.

ASSIGNMENTS

1. SHORT PAPER AND PRESENTATION: Identify a Wicked Problem area on which you will work for the quarter. State why you think the topic lands you in wicked problem territory. (You will be working with the same topic throughout the quarter so select something that really interests you.) Your paper should be 3-5 pages in length. Please hand in a hard copy and an electronic one. You will present your wicked problem topic/area to the class on Day 4. If the class does not agree that your problem is in wicked problem territory, you will need to find another topic and repeat the process until there is agreement. **WRITTEN PAPER AND SHORT PRESENTATION ARE DUE ON CLASS 4.**

2. COURSE PROJECT: APPLICATION OF FOUR APPROACHES TO YOUR “WICKED PROBLEM”: You will keep a **course diary** that captures your thinking and analysis on each of the four approaches—1) Creativity; 2) Entrepreneurship and Innovation; 3) Systems Thinking; and 4) Collaboration and Collective Learning. The general question to guide your analysis is: To what extent is this approach a useful way to cope with my wicked problem? Why or why not? Although your analysis should offer some reflection on all four approaches, if you want to put greater emphasis on one or more of the approaches because you find them particularly germane to your problem area please feel free to do so. **WE WILL DISCUSS YOUR OBSERVATIONS AND REFLECTIONS ON THE LAST DAY OF CLASS. WRITTEN PAPERS SHOULD BE A MINIMUM OF 15 PAGES AND ARE DUE COB ON WEDNESDAY OF FINALS WEEK.**

GRADING:

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|--|-----|
| 1. First paper and presentation: | 20% |
| 2. Classroom participation: | 20% |
| 3. Analysis of approaches to cope with your “wicked problem” | 60% |
| a). Creativity | |
| b). Entrepreneurship and Innovation | |
| c). Systems Thinking and Complex Adaptive Systems | |
| d). Collective Learning and Collaboration | |

SECTION 1: CONCEPTUAL FOUNDATION

Day 1: Course Overview

Readings: Syllabus (Blackboard)

Nickols "Solution Engineering"

<http://home.att.net/~nickols/reengpsp.htm>

Questions: What is a problem?

What approaches have you used to "solve" problems?

What problem-solving techniques have you learned in your academic career?

What is the difference between problem solving and decision making?

How would you characterize the problem solving process in the Nickols article?

Day 2 Wicked Problem Territory

Readings: Conklin, "Wicked Problems and Social Complexity," (Blackboard)

Kreuter et. al. "Understanding Wicked Problems" (Blackboard)

Gard, "Oregon, A Wicked Problem" (Blackboard)

Check out web site: <http://www.cognexus.org/id42.htm>

Questions: What is a wicked problem?

How do wicked problems differ from other types of problems?

According to Conklin, why are we finding ourselves more and more in wicked problem territory?

According to Conklin, "solving a wicked problem is fundamentally a social process. Having a few brilliant people or the latest project management technology is no longer sufficient." Explain his rationale for making this statement.

Examples of wicked problems the military is confronting?

Day 3 Wicked Problem Territory:

Readings: Hisschemoller and Hoppe, “Coping with Intractable Controversies: The Case for Problem Structuring in Policy Design and Analysis” (Blackboard)

Van Bueren, Klijn, and Koppenjan, “Dealing with Wicked Problems in Networks: Analyzing an Environmental Debate from a Network Perspective” (Blackboard)

Case: Luckey and Schultz, “Defining and Coping with Wicked Problems: The Case of Fort Ord Building Removal” (NPS Thesis. Skim. Take a look to see how these students approached the topic—Blackboard)

Questions: How do Hisschemoller and Hoppe describe the different types of problems?

According to Hisschemoller and Hoppe, why are policymakers inclined to move away from unstructured problems to more structured ones—they call it the “containment of problems”?

What are the implications of their 2 X 2 model for problem solving?

What four strategies do they identify for problem solving and what are the assumptions behind each strategy?

Explain this statement and its implications for ‘experts’: “How a problem is to be defined is ultimately a matter of political choice. This follows from the notion that policy problems are social and political constructs. Unstructured problems require an intensive process of socio-political interaction. This usually will produce new insights on the problem, insights that cannot be foreseen in polity analysis.”

Day 4 Your Wicked Problem Territory

Papers and presentations on your topics for the course.

SECTION 2: APPROACHES TO COPING WITH WICKED PROBLEMS

Day 5 The Creative Approach

Readings: Adams, Chapters 1, 2, 3, 4

Questions: What conceptual blocks might be preventing you and others from understanding your wicked problems and their solutions?

Which of these blocks do you find most characteristic of your problem-solving approach?

How exactly does creativity help you “see” your wicked problem and its solutions differently?

How might you frame your problem and its solution differently having gone through some of the exercises?

Day 6: The Creative Approach

Readings: Adams, Chapters 5, 6, 7, 8, 9

Optional: Abbott, *Flatland: A Romance of Many Dimensions (And I do mean optional)*. <http://www.geom.uiuc.edu/~banchoff/Flatland/>
Also in Blackboard.

Questions: What additional blocks may be contributing to how you define and solve your wicked problem?

To what extent would Adams’ suggestions for breaking through the barriers to creativity enable you to deal more effectively with your wicked problem?

Have you tried them? Any success? If not, what seems to be the difficulty?

Day 7 Entrepreneurship and Innovation Approaches

Readings: Roberts & King, Introduction and chapters 1, 2, 3, 5, 6

Questions: What is entrepreneurship?

 What is innovation?

 What is the relationship between entrepreneurship and innovation?

 What wicked problems were the policy entrepreneurs attempting to deal with?

 To what extent did their entrepreneurship and innovation enable them to find a way out of wicked problem territory? Were their efforts successful?

 To what extent would entrepreneurship and innovation be a way for you to better cope with your wicked problem? How might they work for your issue/situation?

Day 8: Entrepreneurship and Innovation Approaches

Readings: Roberts & King, 4, 7, 8, 9

Questions: To what extent is failure to cope with wicked problems due to the failure of team entrepreneurship and innovation?

 To what extent is the inability to cope with wicked problems due to a lack of a supportive cultural context and a strong network of organizations to develop and sustain entrepreneurship and innovation?

 What lessons learned from this case study of public entrepreneurship and innovation could apply to your wicked problem domain?

Video: Deep Dive

Day 9: Entrepreneurship and Innovation Approaches

Readings: Nagl, *Learning to Eat Soup with a Knife: Counterinsurgency Lessons from Malaya and Vietnam*, Preface, Introduction, Ch. 1, 2, 3, 8, 9.

Questions: How different is entrepreneurship and innovation in the policy arena from entrepreneurship and innovation in military operations and doctrine?

Richard Downie's Institutional Learning Cycle (Figure 8-1) is the theoretical basis for the book. How does his learning cycle compare to a problem solving approach? Similarities? Differences?

What problem-solving approaches does he recommend to get beyond DOD's wicked problems in Iraq?

Do you concur with his assessment?

Day 10: Systems Approach: Systems Thinking

Readings: Anderson & Johnson, *Systems Thinking Basics*, Sections 1, 2, 3

Kim, "Levels of Understanding: 'Fire-Fighting' at Multiple Levels" (Handout)

Check out web site: <http://www.pegasus.com/aboutst.html>

Exercises: Do the exercises in the text.

Day 11: Systems Approach: Systems Thinking

Reading: Anderson & Johnson, *Systems Thinking Basics*, Section 4

Exercises: Do the exercises in the text.

Day 12: Systems Approach: Systems Thinking

Reading: Anderson & Johnson, *Systems Thinking Basics*, Sections 5 and 6

Exercises: Do the exercises in the text.

Day 13: Systems Approach: Complex Adaptive Systems

The size of an avalanche is unrelated to the grain of sand that triggers it. The same tiny grain of sand may unleash a tiny avalanche or the largest avalanche of the century. Big and little events can be triggered by the same kind of tiny cause. Poised systems need no massive mover to move massively.

-- [Stuart Kauffman](#), *At Home in the Universe*
(on self-organized criticality)

Readings: Fryer, "A Brief Description of Complex Adaptive Systems and Complexity Theory"
<http://www.trojanmice.com/articles/complexadaptivesystems.htm>

Go to web site: <http://necsi.org/> . Then access:
<http://necsi.org/guide/index.html>. Follow the concept map to explore some of the concepts in Complex Systems by Yaneer Bar-Yam. Explore the rest of the site, including the visualizations.

Jones, Complex Adaptive Systems
http://www.beyondintractability.org/essay/complex_adaptive_systems/
(be sure to click on "boids.")

Optional: Wikipedia, "Complex System"
http://en.wikipedia.org/wiki/Complex_system

Complex Adaptive Systems Research, <http://www.casresearch.com/>

Terrorism, Nonlinearity & Complex Adaptive Systems,
http://www.cna.org/isaac/terrorism_and_cas.htm

Smith, *Complexity, Networking, & Effects-Based Approaches to Operations*,

http://www.dodccrp.org/publications/pdf/Smith_Complexity.pdf

Read: Executive Summary, Introduction, chapters 1, 2, 3

Complex Systems in Science and Society: Military

<http://necsi.org/cxworld/military.html>

Complexity Publications Update (Blackboard)

Questions: What is chaos theory? Complexity theory? Complex adaptive systems?

What is the significance of the concepts "emergence," "nonlinearity" and self organization for our understanding of wicked problems?

How does the concept of complex adaptive system inform your understanding of your wicked problem and your ability to cope with it?

Day 14: The Collaborative Approach: Failing into Collaboration

Readings: Conklin, “The Age of Design” (Blackboard)

Roberts, “Coping with Wicked Problems” (Blackboard)

Questions: What is the Age of Design?

According to Conklin, what is the relationship between the Age of Design and wicked problems?

What is Conklin’s approach for coping with wicked problems? What is his rationale for using this approach?

What is collaboration? Why do you have to fail into collaboration?

What alternative strategies have been employed to cope with wicked problems? Advantages? Disadvantages? Consequences?

Day 15: The Collaborative Approach: Building a Consensus

Readings: Straus, Introduction and Chapters 1, 2 (Purchase)

Questions: How does Straus define collaboration? What are his five basic principles of collaboration?

How does his characterize collaboration and how does his approach differ from other approaches to problem solving?

What is a problem-solving heuristic? Examples?

Who/what is a stakeholder and how does Straus propose to involve them in the problem solving process?

Video: Building Consensus: Transportation Rulemaking in Oregon (in class)

Optional: Innes and Booher, “Consensus Building and Complex Adaptive Systems” (Blackboard)

Innes and Booher, “Consensus Building as Role Playing and Bricolage: Toward a Theory of Collaborative Planning” (Blackboard)

Day 16: The Collaborative Approach: Building a Consensus

Readings: Straus, Chapters 3, 4, 5, 6 (Purchase)

Questions: How should one build a consensus according to Straus?

How does collaborative problem solving differ from mediated negotiation?

What happens when groups can't reach consensus, especially in a multi-organizational collaborative process?

What are the pathways to action and their significance?

What is process design and how it is related to a meeting agenda?

What is a process map and why does Straus recommend creating one?

Describe the process maps in figures 15 and 16.

What is the purpose and role of a facilitator?

What is the purpose and role of the recorder or group memory?

Day 17: The Collaborative Approach: Building a Consensus

Readings: Straus, Chapters 7, 9, 10 (Purchase)

Questions: What is the role of leadership in the collaborative approach? How does it differ from a more traditional role of leadership?

What are the four skill sets essential to facilitative leadership?

Case: Sontag, "The Hole in the City's Heart" (Blackboard)

Questions: How would you describe the problem-solving approach used to rebuild the WTC?

In what ways was it similar to, different from Straus' model? Be specific.

How would you evaluate the leadership and problem solving in the rebuilding efforts?

Has a collaborative community evolved? How would you describe the current state of affairs at the WTC rebuilding site?

Day 18: The Collaborative Approach: Large-Group Interventions

Readings: Shaw et. al., “Problem Structuring Methods for Large Group Interventions” (Blackboard).

Bryson and Anderson “Applying large-Group Interaction Methods in the Planning and Implementation of Major Change Efforts” (Blackboard)

Case: Lukensmeyer and Brigham, “Taking Democracy to Scale” (On reconstruction of WTC) (Blackboard).

Lukensmeyer “Engaging Citizens on the Tough Issues” (Blackboard)

Questions: What is a large-group intervention? What is its purpose?

What is the role of technology in large-group interventions?

Is there an upper limit to the numbers who can be involved in these large-group interventions/collaborations?

How would you evaluate “Taking Democracy to Scale” in light of Sontag’s case—The Hole in the City’s Heart?

Optional: Bunker and Alban, “Introduction to the Special Issue on Large Group Interventions” (Blackboard)

Day 19: Collaborative Approach: Structured Dialogue

Readings: Conklin, “The Dialogue Mapping Experience” (Blackboard).

Conklin, “Dialogue Mapping: Reflections on an Industrial Strength Case Study” (Blackboard)

Conklin, “Making Sense of Fragmentary Information” (Blackboard)

Conklin’s web site: <http://www.cognexus.org/id26.htm> where you can find the following optional readings:

Optional: Conklin, “Collaborative Display is a Phenomenon”

Conklin, “Designing Organizational Memory”

Conklin et.al., “Facilitated Hypertext for Collective Sensemaking: 15 Years on from IBIS”

Conklin, “The IBIS Manual”

Conklin et.al., “Towards an Ecological Theory of Sustainable Knowledge Networks”

Questions: What is dialogue mapping?

Why, according to Conklin, does dialogue have to be structured and mapped? What is the purpose and advantage of mapping dialogue?

How does structured dialogue compare to the large-group interventions techniques we discussed previously?

Is there an upper limit to the numbers of people who can be involved in structured dialogue?

Optional: Check out web site: <http://www.harnessingcollectivewisdom.com/>

Day 20: TBA

Day 21 Paper Discussions: How do these different approaches help you cope with your wicked problem?

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