

Handouts (v.2) for

**Tools for Dealing with Uncertainty, Ambiguity, and Paradox:  
Reflective Methods for Group Development**

A workshop at NCDD 2008

Workshop facilitators:

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*WORKSHOP DESCRIPTION:*

Dialog and deliberation can become particularly challenging when the focal topic involves substantial complexity, uncertainty, ambiguity, or paradox, as is all too often the case. Complexity and uncertainty arise in part from the external situation, but also because human thinking and social processes, are so complex. Our focus is on methods designed to promote mutual understanding and open participants to more flexible understanding of multiple perspectives and interpretations that arise during dialog and deliberation. The traditional D&D goals of giving all parties a voice and finding common ground, while important, can result in a less than deep mutual understanding among participants. Our goal is to support D&D going deeper into learning, change, and transformational spaces.

We will introduce several methods for helping groups grapple with such situations. These methods are particularly appropriate to contexts that allow rich dialog for small to medium sized groups with a commitment to working together.

(Presenter Bios are at the end of the packet.)

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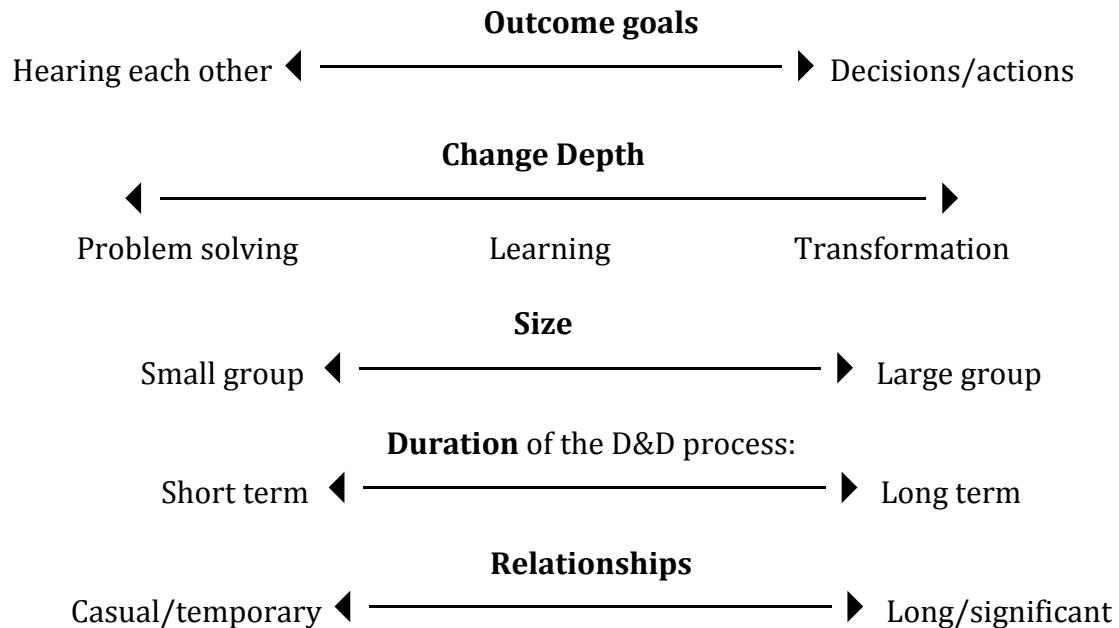
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**Activity: Describe the D&D work you do or are interested in**

..in terms of where the work that you do falls along these spectra:

(Purpose:

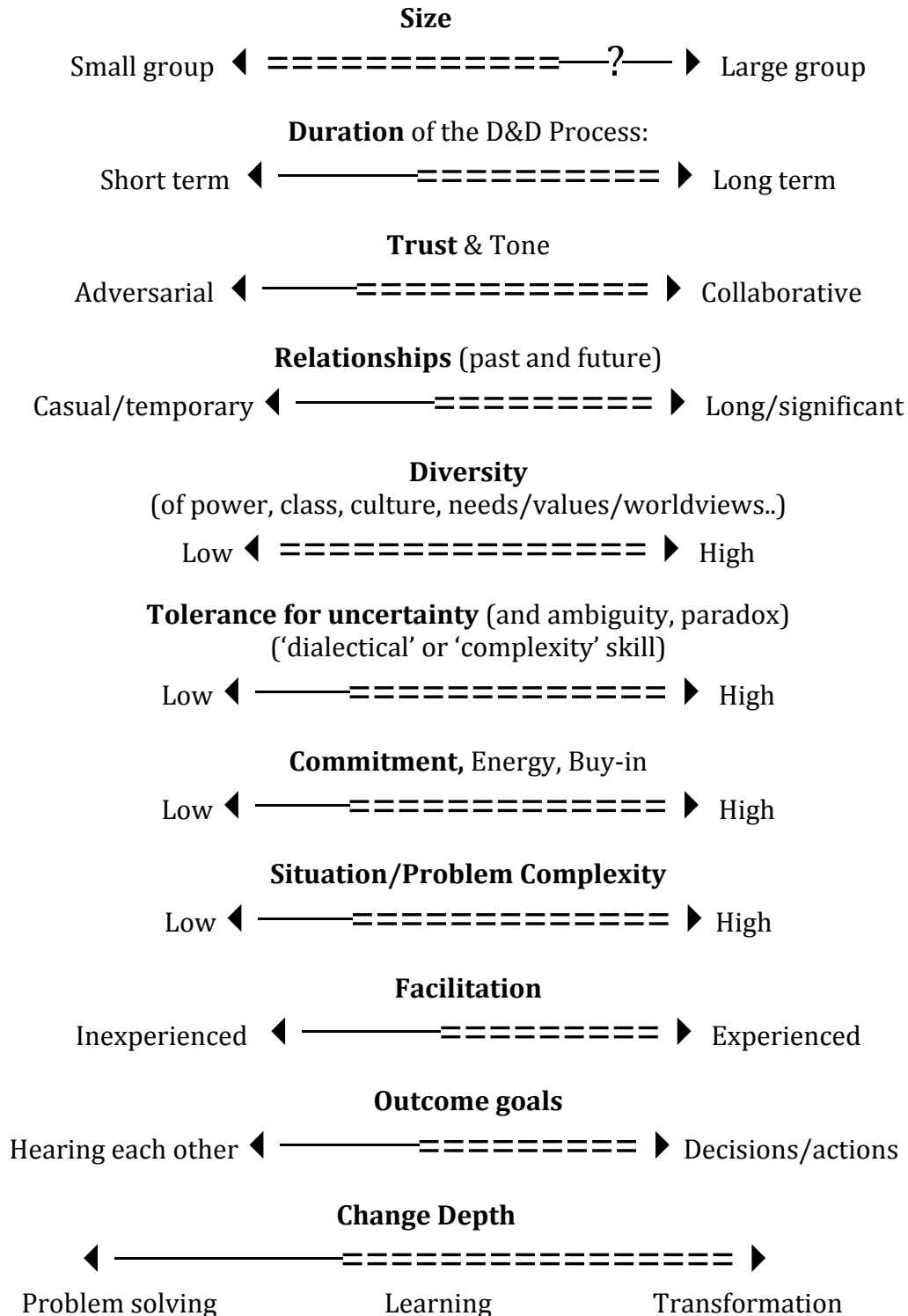
- Quickly learn a bit about each other in terms of how we use D&D
- Start thinking in terms of how D&D contexts vary in ways that may help us map situation parameters to D&D methods.)



## Dialog and Deliberation Context Parameters

*Parameters you can use to rate, choose, or customize D&D methods.*

*The methods we will introduce today apply very roughly as follows in the double-lined areas:*



### Focus on Mutual Understanding aspect of D&D processes

Mutual Understanding is only one aspect/phase/goal of any full D&D process. What we offer here is meant to be a component or a layer of a full process.

#### D&D components

- Information sharing
- Goal/vision setting
- ***Develop mutual understanding***
- Advocating, deliberating
- Agreements. decisions
- ....

### Sources of Uncertainty, Ambiguity, and Paradox

**Complex** situations, Ill-defined (“Wicked”) problems

Global, civic, organizational, personal.... (on all scales)

#### A. *External* sources

- Lots of information
- Complex interrelationships
- Un-trusted information sources...
- Dilemmas – involve difficult tradeoffs, can’t “have it all”

#### B. **\*Internal sources\***

Groups

- Multiple perspectives, opinions, agendas, worldviews...

Individuals

- Hidden assumptions, conflicting inner beliefs, desires,...
- 

*Both are important. “B” is the primary focus of the methods introduced here.*

### Working with Complexity and Uncertainty

What do we do with complexity, uncertainty, ambiguity, and paradox??

#### A. **Reduce it** (fix it!)

- Get more accurate info
- Simplify the process
- Scale down the project...

#### \*B. **Accept and Adapt to it\***

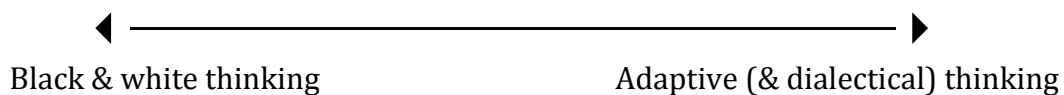
(Our focus is on what is left over or inherent)

See our suggestions later....

*Both are important. “B” is the primary focus of the methods introduced here.*

## Attitudes to, and Capabilities for, Complexity and Uncertainty

1. There is no uncertainty!  
There is a right way and a wrong way. (Its us vs. them)
2. There are many approaches to explore systematically, rationally.  
A most effective one exists and our goal is to find it.
3. Everyone is right. Let many flowers bloom.  
What does your intuition say? (Can lead to indecision.)
4. Uncertainty and perspectival diversity are inherent.  
We move forward to meet the needs of the whole through mindfulness, rigor, creativity, and compassion.



## Attitude/capacity depends on CONTEXT

One's capacity to deal with complexity and uncertainty is partly developmental and skill-based, BUT: each person brings a different level to each situation or topic.

**Cognitive overload and emotional charge** (fear, anger, confusion, urgency, etc.) can put the brain into more primitive (black and white) thinking modalities.

Some degree of **certainty is important** for decision and action. **But** rigid or black and white thinking can not process complexity, plan for long term and sustainability, or balance conflicting needs.

## Dialog, Deliberation, and Mutual Understanding

- **Dialog** supports **listening** to others; supporting everyone in having a **voice**
- **Deliberation** builds upon dialog, using reasoning skills to make **decisions** for recommendation or action

Deep listening and sharing creates deep **mutual understanding**.

Mutual understanding creates mutual regard and mutual recognition

Mutual understanding forms the basis for collaboration, action, transformation

**Common problems** when D&D does not reach its potential and mutual understanding is not achieved:

- “Feel good” outcome without sufficient depth.
- The “common ground” identified is shallow—not a basis for collaboration & change.
- Real differences in values or goals are not addressed and acknowledged.
- Misunderstanding, inaction, or poor decisions can result.

***Ahhh!....wow!....I see! (you)...***

Those rare moments of understanding across great human divides.....

...an **opening of mind and heart**

Moments of grace, appreciation, forgiveness, connection, release...

## Why are moments of mutual understanding so rare and difficult?

Complexity and uncertainty is the territory of **dissonance, discomfort, vulnerability....**

### A. **Emotional** factors

Emotional/ego challenge of opening to new information, suspending assumptions, letting go of preconceptions.

### B. **Cognitive** factors

Cognitive challenge of dealing with complexity, uncertainty, ambiguity, paradox  
--often requires adaptive/dialectical/systems thinking.

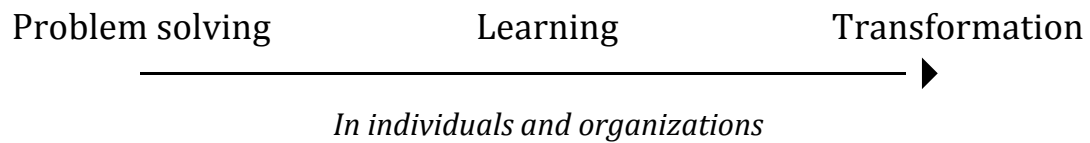
Participants need both *emotional/social* support and *cognitive* frameworks to navigate these waters.

The methods we show help mostly with the cognitive side. But they may not be effective if **emotional/social support** is missing.

## Supporting Growth and Transformation

### Mutual Understanding << === >> Self understanding

Opening deeply to understand or consider where another is coming from required suspending, releasing, and/or reflecting upon one's own assumptions, framework, etc.



Methods that allow for complexity and that work toward deeper mutual understanding support learning and transformation of individuals and groups. (This is possible if there is **sufficient time and willingness**, and where the resistance to change is not significant.)



## Context-setting Activity

**Assume that your elected officials are passing legislation requiring civic community service where all citizens engage in formal civic D&D processes of some sort in order to respond to challenging contemporary issues.**

**1. How many hours per month do you think should be required for each citizen? (Agree to one number here.)**

**2. Explain your reasoning for #1.**

**3. What exceptions should the legislation allow for the above “rule?”**

(Feel free to make whatever assumptions you need so that it seems like a practical, workable piece of legislation.)

## Post Activity Reflective Questions:

- Did you encounter **terms or concepts** that people had different meanings for or interpretations of? Discuss the nature of a couple of these.
- Did anyone feel as though their perspective was **not fully understood**, and was misunderstood or misrepresented? What was that like?
- What are the **central concepts** in the dialog? Do people have different interpretations or **associations** with these concepts?
- Did anyone encounter a statement or belief from another that they disagreed with? Was it **difficult to empathize** with how one could come to that belief?
- Did you **learn anything** in the encounter? Did you change your mind about anything?

## Tools, Methods, Activities for adaptive/dialectical group thinking

### Tools to help deal with complexity, uncertainty, ambiguity, paradox

In this packet we provide brief descriptions of the items in the first list. We simply mention items in the second list.

- Mapping Conceptual Spread  
*Discovering differences in meaning*
- The Believing game  
*Entering into alternative world views and beliefs*
- Ladder of Inference  
*Managing our confidence*
- Revealing Your Hidden Voices  
*What are we thinking underneath our thoughts and actions?*
- TIP--The Integral Process for Working on Complex Issues
- Polarity Mapping  
*Understanding polarities, paradoxes, dialectics...*

Others:

- Belief “turn arounds” (see Byron Katie)  
*Being playful with meaning and belief*
- Using extreme cases, analogies, simple cases  
*Divergent thinking*
- Reflective listening (debugging communication)  
*This is what I heard you say (or what did you hear me say)?*

*Caveats for this tools set:*

- These are only part of any larger D&D process
- They focus on building mutual understanding
- They support the cognitive challenges of having multiple perspectives, but creating supportive emotional/social environment is also necessary.
- They assume participants have the time and willingness to go “deeper.”

## Mapping Conceptual Spread

*Revealing the many meanings of the words we are using.*

In dialog people can have very different ideas and emotions come to mind for the same word. Recognizing these differences can lead to clearer communication and greater mutual understanding. As shown in George Lakoff's books, the associations that we form in our minds between different words or concepts have a powerful unconscious influence on us.

The word or phrase \_\_\_\_\_

Positive associations	Neutral associations	Negative associations

Brainstorming questions (fill in the boxes):

- It means \_\_\_\_; It is \_\_\_\_; It is not \_\_\_\_
- Examples are...
- It reminds me of...
- It leads to...
- What causes it?
- It makes me feel...

Follow-up:

- Notice how different people interpret a word/phrase differently. Note there is no single "right" interpretation. (Though there can be inaccurate facts and non-useful interpretations.)
- What are general areas of agreement and difference?
- What did you learn here (about others, yourself, your group, the world)?
- How can we communicate with more clarity or understanding?

## The Believing game

- Criticism/Skepticism's Proper Goals: protect us from faulty claims of others; AND challenge our own beliefs. (Not: to simply protect our own world view.)
- Yet "critical/skeptical thinking" is so often applied to *others'* ideas and can block the reception/perception of valid information.
- Avoid the extremes of:
  - Dogmatism: unskilled at doubting
  - Skepticism: unskilled at believing
- Before critiquing, open up to the other's ideas/world view.

(Adapted from P. Elbow's The Rhetoric of Assent and The Believing Game)

The Claim \_\_\_\_\_

Claim's feeling or 'valence': good/desired <--> bad/undesired

(A Counter-claim \_\_\_\_\_) (Its feeling/valence)

Choose the difficult one (claim or counter claim), the one you DON'T agree with.

Answer these questions about the difficult claim:

- How could you **define** or understand the words used to make it seem true (and feel good/bad)?
- Think of real or imagined **circumstances** where it would seem true (and feel good/bad).
- What would one need to **believe** for it to seem true (and feel good/bad)?
- *Release valve!: You may need a space to write or say what you 'really' or originally believe. (Or how it feels to be trying this exercise)*

Follow up:

- Grains of truth: Is the *some sense/way* that it is true? Some *sense/way* that it is not true?
- What did you learn here (about others, yourself, your group, the world)?
- Would we ALL agree that it seems true IF (word meaning, context, assumptions...)

Note: can be done individual, pairs, or groups; then do group follow-up.

## Ladder of Inference

Revealing Assumptions (mental models, leaps of abstraction/generalization) and grounding in observations.

Ladder of inference Model (read from bottom to top)

I take ACTIONS based on my beliefs.

I adopt BELIEFS about the world.

I draw CONCLUSIONS.

I make ASSUMPTIONS based on the meanings I add.

I add MEANINGS (cultural and personal).

I select "DATA" from what I observe.

Something happens in my observable world

NB My BELIEFS affect the DATA that I select

Start with a statement (a claim).

Questions:

- What are the observable data behind that statement?
- Does everyone agree on what the data are?
- Can you run me through your reasoning?
- Why is the outcome important to you?
  - What do you wish for?
  - What are you concerned about?
- What are the assumptions? Keep asking deeper: why, how...

(ref: Argyris)

### Revealing Your Hidden Voices

- Revealing our inner dialog
- Uncovering subconscious goals (competing or undermining intentions or commitments) that make us resistant to changing our un-useful beliefs or behavior patterns.

### Exposing what goes unsaid

Left hand column: What I am (was) thinking (and did not say)	Right Hand column: What I and they said:

(adapted from Argyris)

Also possible to add columns:

- “The result of what was said”
- “My intentions—the results I wanted”

### Change Process “Immunity Map”: Internal languages for transformation

(From Kegan & Lahey)

A process for uncovering problematic core beliefs that undermine our efforts to fulfill our intentions and commitments.

0. Complaints	1. Commitment	2. Responsibility (what prevents)	3. Competing (undermining) Commitment	4. Big Assumptions (core beliefs)
What is unsatisfactory about me, others, the situation?	I am committed to the value or importance of...(implied by my complaints)	What I am doing or not doing that prevents my commitment from being fully realized?	I may also (perhaps unconsciously) be committed to...	My competing commitment assumes that...
(enter your answers here)				

Follow up:

- Question the Big Assumptions
- How does this assumption impact your relationships and goal success?
- Consider testing (and replacing) them.

Transforming our language from one of .... to one of...

- complaint TO commitment
- blame TO personal responsibility
- new year's resolutions TO competing commitments
- assumptions that hold us TO assumptions we hold
- prizes and praising TO ongoing regard
- rules and policies TO public agreement
- constructive criticism TO deconstructive criticism
- energy required for change immunity TO harnessing energy for change
- mental doldrums TO mental state-of-the-art technology
- organizational stagnation TO organizational transformation
- personal frustration TO personal transformation

## TIP Issues Framing

Part of TIP: The Integral Process for Working on Complex Issues  
(See ARINA, Sara Ross)

### Issues Framing Template from TIP

- People may favor this approach if they **assume** that...
- People who favor this approach **believe** it is best because...
- This approach may be **worrisome** to others because...
- Sample **actions** that a diverse array of actors could take to implement this approach effectively (say which actors)
- A range of **trade-offs** that different actors would have to make under this approach

The **Integral Process for Working on Complex Issues** (TIP) is designed to help people in a wide variety of settings to do knowledge-building and comprehensive decision making about issues. It provides a clear progression of steps for people to see concrete interconnections among big topics of concern so they realize when and why quick fixes are unrealistic and so they know how to work on a sustained, systemic basis to address issues. The steps help people identify the root causes' tangled weave of behaviors, attitudes, institutional structures and policies. When people see how issues developed and how they are maintained as problems, they can begin to address them systematically and knowledgeably.

One step is **issue-framing**. TIP includes issue-transportable "issue framing templates" to help people to identify for themselves the broad and deep range of factors and perspectives surrounding an issue so it can be deliberated. Within each of the (usually four) options people develop before trying to figure out how to address an issue, participants are asked to answer the four questions shown in the template above.

A range of trade-offs that different actors would have to make under this approach. The templates help ensure all voices are heard, respected, used and available to be deliberated. Templates ensure that people have deliberation-inducing options. These facilitate deliberation within ourselves and with others. This supports comprehensive decision making at the meta level that complexity seems to demand.

See <http://www.global-arina.org/researchprojects/TIP.html>



### Integral Facili-mentoring

(See Jan Inglis, and [www.integrativelearninginstitute.com](http://www.integrativelearninginstitute.com))

Jan will be demonstrating Integral Facili-mentoring during the workshop activity.

This is a term we have created to describe what happens when facilitation is done in a way that leads to learning. Inquiry and analysis are used so that patterns and gaps can be seen and reflected upon within and between participants, amongst the group and in the context of their cultural or organizational situation or issue. These may lead to deepening integrity between intentions, actions and outcomes. It builds connections between experiential and conceptual learning.

## Polarity Mapping

(Usually called “Polarity Management”)

Some challenges are **polarities to manage**, rather than problems to solve. Polarity management involves moving from focusing on one pole as the problem and the other as the solution (either/or thinking), to valuing both poles (**both/and** thinking). The poles of a polarity are interdependent and mutually defining. They related dialectically or as in figure/ground. Good polarity management gets the best of both poles of a dilemma while avoiding the limits of either.

Polarities are:

Ongoing, no end point, not “solvable”

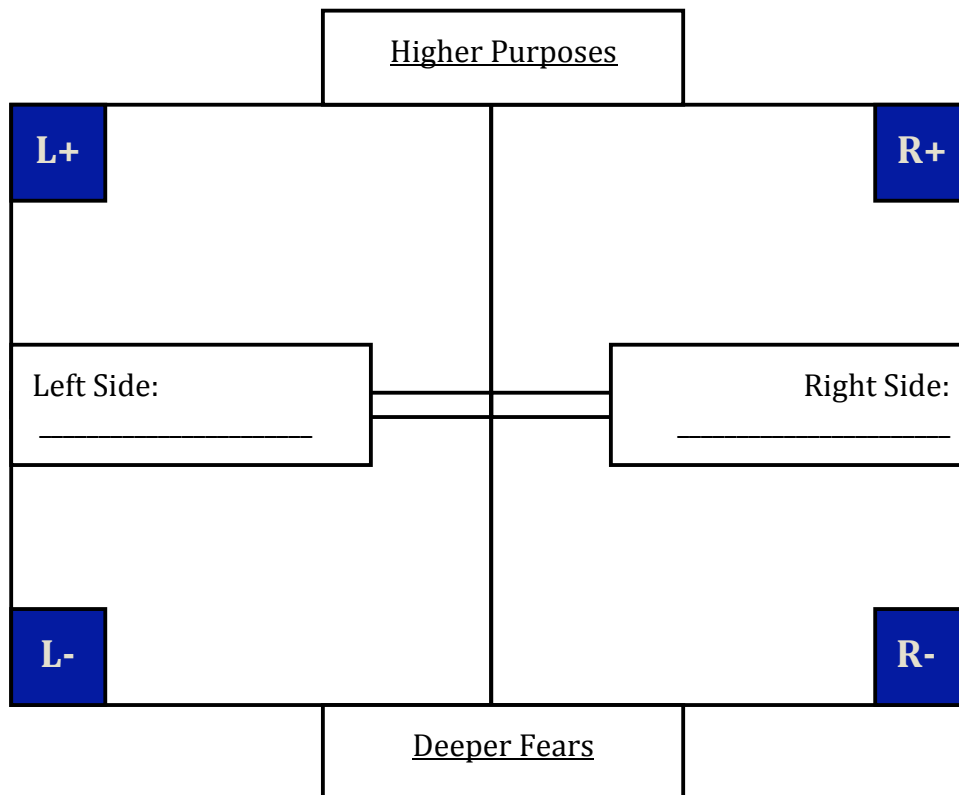
Interdependent, Cannot stand alone, must be managed together

### Common Polarities (From Johnson, 1992)

Individual (freedom, creativity)	Teams (belonging, equality)
Autocratic (top down)	Participatory (bottom up)
Centralized	Decentralized
Critique	Encouragement
Clarity & Rigor (vs. ambiguous, undirected)	Flexibility & Openness (vs. rigid)
Planning (or reflection)	Action (or deciding)
Stability (or tranquility, standardization)	Challenge (or stress, innovation)
Cost Driven	Quality Driven

See Polarity Management by Barry Johnson, [www.polaritymanagement.com](http://www.polaritymanagement.com)

## Polarity Mapping, Cont.



L+, R+ : Values and Positive Results from focusing on Left/Right Pole.

L-, R- : Fears and Negative Results from (over)focusing on Left/Right side Pole.

See Polarity Management by Barry Johnson, [www.polaritymanagement.com](http://www.polaritymanagement.com)

## Concluding Slides

### Assumptions to Support Mutual Learning and Ontological Humility

( vs unilateral control and ontological arrogance)

Our process is based on these assumptions we hope you can make:

- **Rationality is limited;**
- Other perspectives are complementary and additive,
- Errors are learning opportunities
- Everyone's needs matter

(adapted from Kofman; Argyris & Schon)

### Sources of complexity, uncertainty, ambiguity, paradox:

The paradox of conflicting ideas: **how can both (all) be right?**

Possible sources:

- Differences in interpretation (meaning) of the words
- Different associations (examples, what it is like, caused it, will cause)
- Different reasonable (but uncertain) assumptions
- The poles constitute a polarity; each is needed for a whole understanding

Sources related to **external context**:

- Accurate information is hard to determine (what sources to trust?)
- State of affairs is complex, dynamic
- “Dilemmas” – involve difficult tradeoffs, can’t “have it all”

**Unavoidable** sources of complexity and uncertainty, from human nature/language

- Each person has a different (valid) perspective, “piece of the puzzle”
- Words have sliding or fuzzy meanings/interpretations (e.g. “punishment”)
- Divergent associations among participants (e.g. “right to life”)
- Tendency toward black & white (either/or) thinking (need for certainty)
- Deeply held, unexamined beliefs, assumptions, unconscious agendas...
- Multiple or conflicting beliefs within each individual
- Rationality is limited (“bounded”)—the mind makes illogical leaps!

**Avoidable** sources of complexity and uncertainty

- Topics are too general or vague
- Lack of agreement about where to start
- Lack of agreement on root causes
- Lack of structure/method to surface/hold the tension/dissonance that arises
- 

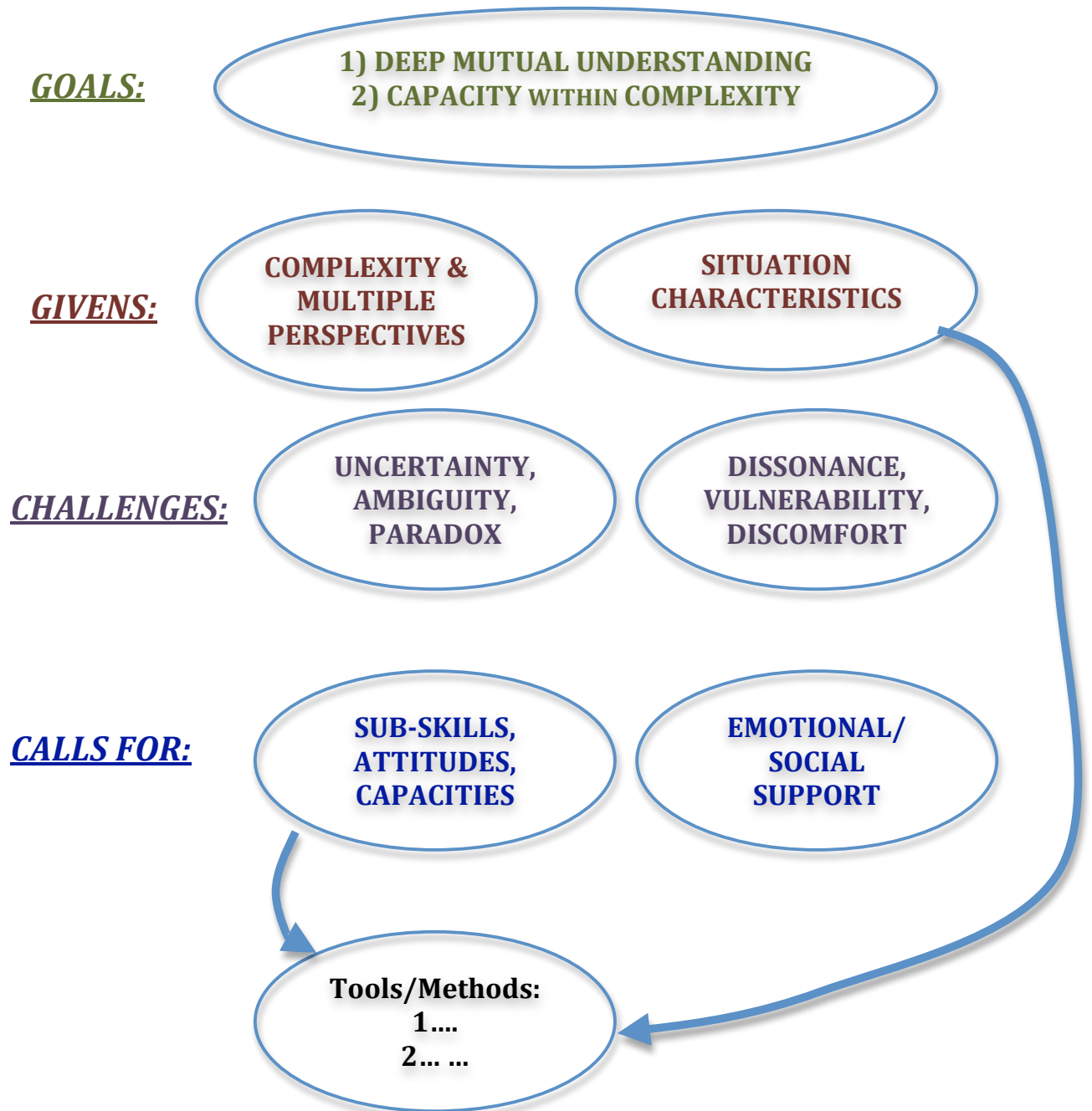
*Each* of these sources can be addressed (anticipated and managed, if not reduced) with an appropriate methodology. The more we understand the landscape and nature of complexity (the inherent sources of uncertainty), the more precise we can be in designing and choosing ameliorative methods.

### Tactics for reducing cognitive and emotional stress

- Psychological (emotional and ego) load (dissonance): SUPPORT
  - Trust, ease
  - Spaciousness and time (slow it down; silent reflections...)
  - Familiarity (share important stories, values...)
  - Find commonality
  - Appreciations, Fun, Beauty (creating the environment)
- Cognitive load & complexity: SUPPORT  
Structure the inquiry/dialog to:
  - Simplify, break into parts (and later re-integrate)
  - Uncover interconnections and root causes
  - Give space/time for emergent creativity and depth
  - See: methods shown in **this presentation**

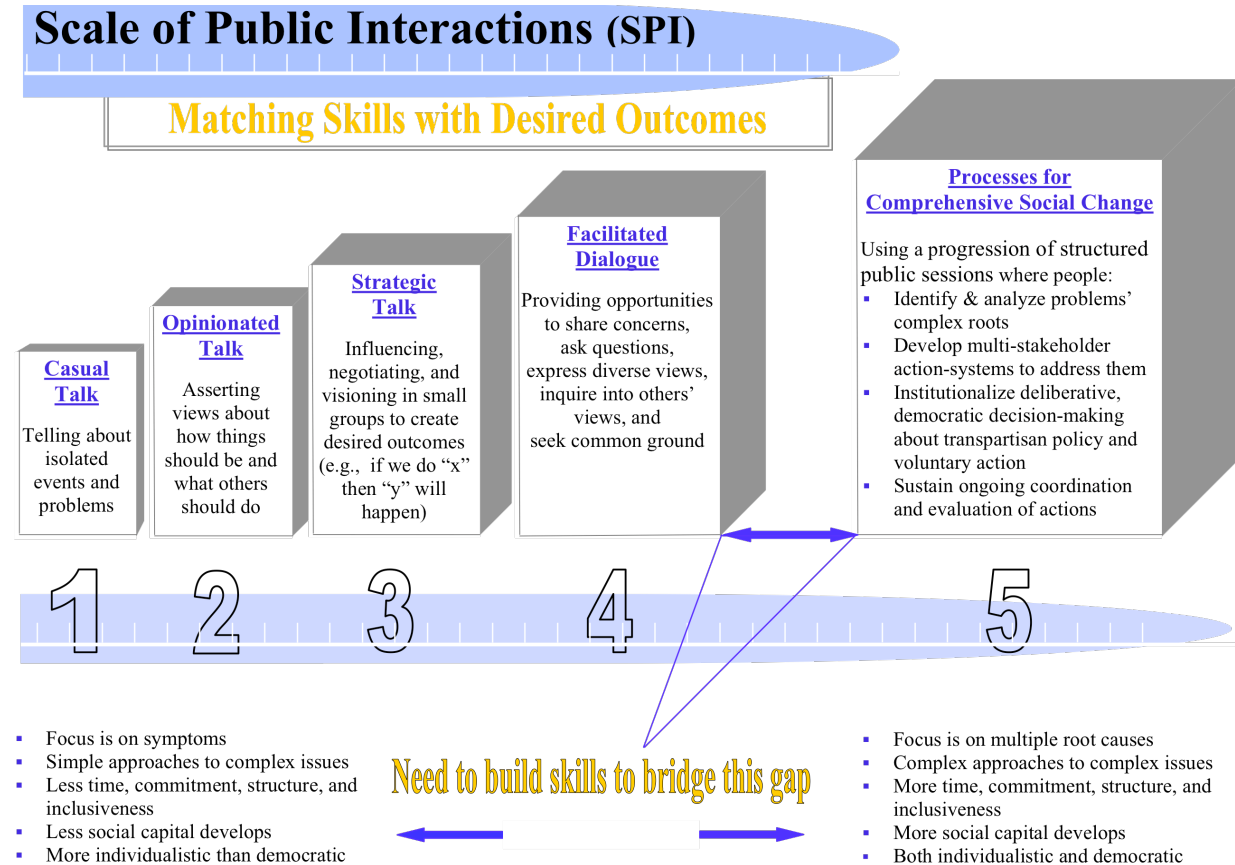
(and see Scharmer U-Theory Presencing process)

## Overview of Key Concepts



## Other Resources

### Scale of Public Interactions



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And see the TIP process above and at:

[www.integrativelearninginstitute.com](http://www.integrativelearninginstitute.com), [www.global-arina.org](http://www.global-arina.org).



## Complexity and Wicked Problems

### Characteristics of **Complexity**:

- Dynamic Change (and delayed feedback)
- Quantity: many parts or layers
- Interconnectedness (systems, interdependencies)
- Diversity (many world-views, perspectives, needs, values...)
- Indeterminacy (uncertainty, ambiguity of info, concepts, language)
- Multiple goals or 'bottom lines'

### **Ill-defined ("wicked") problems:**

- (1) FUZZINESS: You don't understand (can't define) the problem until you have formulated and perhaps even fielded possible solutions;
- (2) PERSPECTIVAL: The stakeholders have very different world views, values, beliefs, and/or needs**
- (3) DYNAMIC: The constraints on the problem solving process – who, what, when, where, why – could change over time;
- (4) UNSOLVABLE: The problem is never "solved" in the traditional sense, you simply run out of resources (i.e. time or money); satisfice rather than optimize; continuously monitor.

(adapted from Corkhill; Rittel; Hayes)

### Role-playing scenarios and case-based approaches

Case-based learning material is being developed to support the following steps and skills for dealing with complex social/ethical problems.

#### A. **Problem solving Steps** in addressing a complex social/ethical problem:

1. RECOGNIZE situations having significant ethical dimensions.
2. IDENTIFY individuals or groups ("stakeholders" and their roles) likely to be affected positively or negatively by action in the situation.
3. UNDERSTAND the goals, needs, values, incentives of each major stakeholder (and role).
4. ASCERTAIN relevant A) standards, B) laws, C) norms and precedents, D) other sources of relevant expertise.
5. DETERMINE the spheres of action, duties, responsibilities, and liabilities of those in responsible (supervisory), acting (direct operation), or responsive (emergency response, damage control, accident investigation) roles.
6. DELIBERATE on differences and balance among: competing goals/values/incentives; responsibilities and liabilities (e.g. Who is to blame? Who is responsible?).
7. SPECIFY appropriate course of action (and who is responsible for carrying it out).
8. PURSUE appropriate course of action.
9. MONITOR and revise course of action iteratively (establish oversight, feedback, and accountability loops).

#### B. **Underlying Cognitive skills** needed for successfully addressing complex social/ethical problems:

1. Ability to comprehend and consider the **perspectives** of others (actors or stakeholders);
2. Resilience in conditions of **uncertainty** resulting from conflict, ambiguity, paradox, and/or change in information or knowledge;
3. Ability to critically **reflect upon on one's values, biases**, habit patterns, emotional states, and beliefs ;
4. Awareness of one's own **personal intentions** and priorities (in each of one's roles) and how these fit with the acting group's purpose and priorities.
5. **Epistemic competence**, including: differentiating among facts (mutually verifiable information), assumptions, and inferences; and awareness of common fallacies in reasoning.
6. Capacity to engage in productive **dialogs of inquiry** with others to build mutual understanding;
7. Ability to assess and improve the **quality of communication** during information-acquisition and decisions-making, including an awareness of whether all relevant perspectives are being represented and how power dynamics and group cognition effects (e.g. herd mentality) are affecting the deliberation

(Adapted from work on an National Science Foundation project "International Dimensions of Ethics Education in Science and Engineering," conducted at the University of Massachusetts, NSF grant number 0734887.)

## Presenter Bios

### **Dr. Tom Murray,**

*Perspegrity Solutions*, Chief Visionary & Instigator ([www.perspegrity.com](http://www.perspegrity.com))  
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Dr. Tom Murray has been consulting, researching, publishing, and leading workshops in areas including online communities, cognitive tools, adaptive educational software, and knowledge engineering since 1985. Previously a visiting/adjunct faculty member at the University of Massachusetts and Hampshire College, he is current working as a consultant at Perspegrity Solutions. He also teaches classes in Nonviolent Communication and offers meeting facilitation services for several non-profits.

### **Dr. Sara Ross**

*ARINA*, Director ([global-arina.org](http://global-arina.org))  
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Sara Ross, Ph.D. is founder and president of ARINA, Inc., a global nonprofit for education, social scientific research, and the public good ([www.global-arina.org](http://www.global-arina.org)). Ross developed The Integral Process For Working on Complex Issues (TIP) out of over 15 years in action and theoretical research and analyses of public issues, development, and deliberative democracy. She did community issues and politics research independently and for Kettering Foundation, where she served as a primary community politics researcher and workshop facilitator for a number of years. She brings over 20 years experience teaching, designing, training, and facilitating for large and small groups in educational and deliberative public settings.

### **Jan Inglis**

*Integrative Learning Institute*, Director ([www.integrativelearninginstitute.com](http://www.integrativelearninginstitute.com))  
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Jan Inglis specializes in developmental and integral approaches to complex public issues. She is the director of the Integrative Learning Institute [www.integrativelearninginstitute.com](http://www.integrativelearninginstitute.com), which offers programs and services to individuals and organizations committed to comprehensive social change. She has a broad background that integrates experience in health care, community organizing, adult education, psychotherapy, media and participatory action learning. She has worked internationally to develop north/south dialogues on community sustainability. She is a board member of ARINA, an international non-profit organization dedicated to education, social scientific research, and the public good. Jan has an extensive 30 year background in small and large group experiential learning exchanges and presenting at conferences. She has recently presented at the IAP2, C2D2, and BC Non Profit Housing conferences.

## References

- Argyris, C. (1985) *Action science, concepts, methods, and skills for research and intervention*. San Francisco: Jossey-Bass. [www.actiondesign.com](http://www.actiondesign.com).
- Basseches, M. (2005). The development of dialectical thinking as an approach to integration. *Integral Review*, 1, 47-63. ([www.integral-review.org](http://www.integral-review.org).)
- Bohm, D. (1996). *On dialog* (L. Nichol, Ed.). New York: Routledge.
- Conklin, J. (2005). *Dialogue Mapping: Building Shared Understanding of Wicked Problems*. [www.cognexus.org](http://www.cognexus.org).
- Elbow, P. (2005). Brining the rhetoric of assent and the believing game together--And into the classroom. *College English*, March 2005.
- Habermas, J. (1999). *Moral consciousness and communicative Action* (C. Lenhardt & S. W. Nicholsen, Trans.). Cambridge, MA: MIT Press.
- Herzig, Maggie; and Laura Chasin. A Nuts and Bolts Guide from the Public Conversations Project Fostering Dialogue Across Divides. From the Public Conversations Project, [publicconversationsproject.org](http://publicconversationsproject.org). (Also see the PCP Dialogue Tool Box.)
- Inglis, J. (2007). Matching Public Interaction Skills with Desired Outcomes by International Journal of Public Participation. Volume 1, Issue 2, 2007.  
<http://www.iap2.org/displaycommon.cfm?an=1&subarticlenbr=251>
- Kahneman, D, Slovic, P, & Tversky, A. (Eds.). (1982). *Judgment under uncertainty: Heuristics and biases*. Cambridge, UK: Cambridge University Press.
- Kegan, R. (1994). *In over our heads: The mental demands of modern life*. Cambridge, MA: Harvard University Press.
- Kegan, R. & Lahey, L. (2001). *How the way we talk can change the way we work: Seven languages for transformation*. San Francisco, CA: Jossey-Bass.
- King, P.M. and Kitchener, K.S. (1994). *Developing reflective judgment: Understanding and promoting intellectual growth and critical thinking in adolescents and adults*. San Francisco: Jossey-Bass.
- Holman, Peggy; Tom Devane, Steven Cady. *The Change Handbook: The Definitive Resource on Today's Best Methods for Engaging Whole Systems*.
- Kofman, Fred (2006). *Conscious Business: How to Build value through values*. Sounds True, Boulder CO.
- Lakoff, G. (1987). *Women, fire, and dangerous things: What categories reveal about the mind*. Chicago, IL: University of Chicago Press.
- Murray, T. & Ross, S. (2006). Toward integral dialog: Provisional guidelines for online forums. *Integral Review*, Vol. 3, pp. 4-13. Available on line at [integral-review.org](http://integral-review.org).
- Ross, Sara. Toward An Integral Process Theory Of Human Dynamics: Dancing The Universal Tango . *Integral Review*, Vol. 1 No. 1, pg. 64.
- Scharmer. O. (2007). *Theory U: Leading from the Future as it Emerges*.
- Torbert, B. & Associates. (2004). *Action inquiry: The secret of timely and transforming leadership*. San Francisco: Berrett-Koehler.

*Portions of this material is based upon work supported by the National Science Foundation under grant number 0734887. Any opinions, findings, conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.*