Tapping into Our Creative Thinking Skills to Manage Complex Problems
Faculty Institute on Teaching and Learning - RIT
Gerard J. Puccio, Ph.D.
International Center for Studies in Creativity
State University of New York, Buffalo State
Purpose of Workshop

- To explore the role creative thinking plays in resolving complex problems
- To identify individual preferences for the creative process and explore implications of these preferences
- To introduce a small number of Creative Problem Solving principles and tools to enhance effectiveness in resolving complex problems
Workshop Agenda

- Warming-up: What is creative thinking and creativity
- FourSight: Feedback on Personal Preferences within the Creative Process
- Creative Problem Solving Tool Box
  - Dynamic Balance
  - Idea Generation
  - Problem Clarification
  - Solution Development
Exploring the Nature of Creative Thinking & Creativity
“To live is to have problems
and to solve problems is to
grow creatively” (1968, p. 12).

J. P. Guilford
Former APA President
Pioneering Creativity Researcher
Qualities of Complex Social Problems

- **Ill-defined**: No single solution path – no right or wrong answer – thus allowing the problem to be defined in a number of ways.

- **Novel**: Past experience and knowledge is not sufficient to resolve the present situation, adaptive responses are needed for new or changing situations.

- **Ambiguous**: Gaps in information and/or a plethora of information of which only some is relevant.
How do you solve complex problems?
Fundamental Stages of the Creative Process

- Clarifying the Problem
- Generating Ideas
- Developing Solutions
- Implementing Plans
Creativity is... the ability to modify self-imposed constraints.

Ackoff & Vergara (1988)
Creativity is...

production of novel and useful ideas.
Workplace Basics


- **The Foundation**
  Knowing how to learn
- **Competence**
  Reading, writing, and computation
- **Communication**
  Listening and oral communication
- **Adaptability**
  Creative thinking and problem solving
- **Personal Management**
  Self esteem, goal setting, motivation, personal and career development
- **Group Effectiveness**
  Interpersonal skills, negotiation, team work
- **Influence**
  Organizational effectiveness and leadership
Creativity: A Systems View

Person  Process

Environment

Interaction leads to Product (e.g., theories, solutions to problems, ideas, services, inventions, etc.)

Adoption leads to Creative Change (e.g., social change, personal change, innovation etc.)

Puccio, Murdock, & Mance, 2003
Person meets Process

Person

Breakthrough Thinking Process

FOURSIGHT
How do you approach complex problems?
Fundamental Stages of the Creative Process

- Clarifying the Problem
- Generating Ideas
- Developing Solutions
- Implementing Plans
Preference vs. Ability
FourSight Preferences

Clarifier

Ideator

Developer

Implementer
Sample Charts

[Graphs showing trends for Clarifier, Ideator, Developer, and Implementer roles with varying values on the y-axis from 5 to 45]
Clarifier

- Likes to spend time clarifying the problem
- Doesn’t like to move too quickly to a solution
- Wants to be sure the right problem is addressed
- Gathers information to understand the situation
- Likes to look at the details
- *May* analyze to the extreme and not move forward
Clarifier qualities

- Clarifiers are... Focused, methodical, orderly, deliberate, serious, organized

- Clarifiers need... Order, the facts, an understanding of history, access to information, to be able to ask questions

- Clarifiers annoy others by... Asking too many questions, pointing out obstacles, identifying areas that aren’t well thought out, overloading people with information, being too realistic
Ideator

- Likes to look at the big picture
- Enjoys toying with ideas and possibilities
- Likes to stretch his or her imagination
- Sometimes takes a more intuitive approach to problem solving
- Enjoys thinking in more global and abstract terms
- May overlook the details.
Ideator qualities

- Ideators are... Playful, imaginative, social, adaptable, flexible, adventurous, independent

- Ideators need... Room to be playful, constant stimulation, variety and change, the big picture

- Ideators annoy others by... Drawing attention to themselves, being impatient when others don’t get their ideas, offering ideas that are off-the-wall, being too abstract, not being able to stick to one idea
Developer

- Enjoys putting together workable solutions
- Enjoys thinking about and planning the steps to implement an idea
- Enjoys analyzing and comparing potential solutions
- Likes to examine the pluses and minuses of an idea
- *May* get stuck in developing the perfect solution
Developer qualities

- Developers are... Reflective, cautious, pragmatic, structured, planning-oriented

- Developers need... Time to consider the options, time to evaluate, time to develop their ideas

- Developers annoy others by... Being too nit picky, finding flaws in others’ ideas, spontaneously seeing the shortcomings in an idea, getting locked into one approach
Implementer

- Likes to see things happen
- Enjoys giving structure to ideas so they can become a reality
- Enjoys seeing ideas come to fruition
- Likes to focus on ideas and solutions they feel are workable
- Likes the ‘Nike’ approach to problem solving (i.e. “Just do it”)
- May leap to action too quickly
Implementer qualities

- Implementers are... Persistent, decisive, determined, assertive, action oriented
- Implementers need to... Feel that others are moving just as quickly, have control, receive timely responses to their ideas
- Implementers annoy others by... Being too pushy, expressing their frustration readily when others do not move as quickly as they do, overselling their ideas
Combinations

1-way

2-way

3-way

4-way
2-way Styles

“Early Bird”

“Theorist”

“Analyst”

“Driver”

“Accelerator”

“Finisher”
3 and 4 way Styles

“Hare”

“Idea Broker”

“Integrator”

“Realist”

“Optimist”
Group Chart

Team members = 42
Integrators = 4
4-Power Innovation

Clarify
Pinpoint the problem to solve

Ideate
Come up with new ideas

Develop
Refine ideas into strong solutions

Implement
Put the plan into action
When You Clarify

Be conscious to...

- Look at the situation from all angles
- Make sure you understand the background information
- Identify the key data
- Find out what else you need to know
- Isolate obstacles that stand in your way
- Know what is and is not relevant
When You Ideate

*Be conscious to...*

- List lots of ideas
- Be playful
- Look at the problem from a new angle
- Use brainstorming to come up with many diverse ideas
- Use random associations to think outside of the box
When You Develop

Be conscious to...

- Say what you like about the idea
- Raise your concerns, phrased as questions that invite solutions (i.e. How might…)
- Use success criteria to rate competing solutions
- Modify solutions to better meet success criteria
- Identify sources that may assist and resist implementation
- With these in mind, create an action plan that details who does what by when
When You Implement

Be conscious to...

- Get into action, realizing that you will learn as you go
- “Test fast. Fail fast. Adjust fast.”
- Ask what’s working well? What should we do differently? What have we learned?
- Monitor progress and be prepared to cycle back to other phases
Creative Process
Dynamic Balance: The Core to the CPS Process

Diverge

Area of Familiarity

Area of Discovery

Converge
Divergent Thinking Guidelines

- Defer Judgment
- Go for Quantity
- Make Connections
- Seek Novelty
Convergent Thinking Guidelines

- Use Affirmative Judgment
- Consider Novelty
- Check Your Objectives
- Be Deliberate

(Based on Isaksen, Dorval, & Treffinger, 1994)
Sample Problem Statements

**Before**
- Can we improve our performance?
- How to develop a new product that we can get to the market quickly and costs less to produce than our last venture?

**After**
- In what ways might we enhance our team’s performance?
- What might be some new product ideas for our company?
Statement Starters for Clarying the Problem

- How to...? (H2)
- How might...? (HM)
- In what ways might...? (IWWM)
- What might...? (WM)
Figure 7.2
Personal Example of Web of Abstraction

Vision or Desired Outcome
Wouldn’t it be nice if I were promoted full professor.

I need more publications
How to publish more?

I need to make more money
How might I make more money?

I want to feel good about my career
How might I feel content about my career?

I want to be satisfied
How to achieve self-satisfaction?

I’m concerned about retirement
How to ensure a good retirement income?

Why? Why else?

Research is expensive
How might I acquire grant funds for my research?

No time
What might I do to find more time to write?

I need references
How to secure letters of support?

I would like my ideas to live on
In what ways might I leave a legacy?

I want to be better known
How to enhance my reputation?

I want to be promoted full professor
How create products that have mass appeal?

I need more publications
How to publish more?

I need to network more
In what ways might I participate in more conferences?

My CV must be full and complete
How to keep CV up-to-date?

I’m not organized
What system might I use to stay organized?

Why? What’s stopping you?

What’s else is stopping you?

What’s else is stopping you?

What’s else is stopping you?

What’s else is stopping you?
1. **Plusses**
   - Strengths, Good Points, Positives, Pluses

2. **Potentials**
   - Future Spin-offs, Possibilities, Novel Aspects
   - What if thinking

3. **Concerns**
   - Weaknesses, Trouble Spots, Minuses
   - Phrased in "How to..." Statements

4. **Overcome Concerns Through Brainstorming**
   - Generate Ideas to Overcome Main Concerns

(Miller, Vehar & Firestien, 2001)
<table>
<thead>
<tr>
<th>Taking It Home</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Interesting</td>
</tr>
<tr>
<td>• Intriguing</td>
</tr>
<tr>
<td>• Useful</td>
</tr>
<tr>
<td>• Professional Applications</td>
</tr>
<tr>
<td>• Personal Applications</td>
</tr>
<tr>
<td>• Other Uses</td>
</tr>
</tbody>
</table>
Thank You & Good Luck!!


www.buffalostate.edu/centers/creativity