So You Think You Can Innovate?

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Innovation Defined

Surprise in the service of health and prosperity

• Make existing resources better, faster, cheaper
• Create new technologies, breakthroughs
CREATIVITY IN AMERICA

THE SCIENCE OF INNOVATION AND HOW TO REIGNITE OUR IMAGINATIONS

BY PO BRONSON & ASHLEY MERRYMAN
RISING ABOVE THE GATHERING STORM, REVISITED

Rapidly Approaching Category 5

By Members of the 2005 "Rising Above the Gathering Storm" Committee

Prepared for the Presidents of the National Academy of Sciences, National Academy of Engineering, and Institute of Medicine

NATIONAL ACADEMY OF SCIENCES, NATIONAL ACADEMY OF ENGINEERING, AND INSTITUTE OF MEDICINE OF THE NATIONAL ACADEMIES
Teaching Innovation

Can innovation be taught?
Does It Work?

Clapham et al: Meta-analysis of 40 studies
Scott et al: Meta-analysis of 70 studies

2 – 3X increases in fluency, novelty, and originality
Improvements in problem-solving, attitude and work performance
Structured programs demonstrated effects independent of:

- Age
- Gender
- Intellectual capacity
- Professional/academic setting
Conceptual Components

- Recognizing and finding alternatives to habitual cognitive patterns
- Aligning divergent thinking with the scientific method
- Learning to use tools that enhance generative ideation
Overcoming Habitual Cognitive Patterns and Their Implications
Big “I” Innovation Means Thinking Outside Frames

- Frames define human communication and thus thinking
- Frames are expectations which we use to interpret new information and draw inferences
Little “i” Innovation

- Cell phone
- GPS
- Safety of Anesthesia

Big “I” Innovation

- Transistor
- Theory of special relativity
- Germ theory
Threats to Mankind Require Big “I” Innovation

- Income/Education disparities
- Alzheimer’s disease
- Global warming
- Emerging infections
- Obesity
Example: Expectation in going to a restaurant
Gary and Nancy are lying on the floor dead. Around them is a puddle of water and some broken glass. What are the circumstances of their death?
Answer: They are fish and their fish tank broke – thus they suffocated.
Remove street signs from city centers
Metaphors and Frames

- War on cancer
- Cancer as neighbor