

Whatever Happened to Creative Thinking???

Carol L. Tieso, Ph.D.
Gifted Education
College of William and Mary
cties@wm.edu

South Carolina Consortium for Gifted Education
November 2006
Charleston, SC

1

Creative Thinking Skills

- SCAMPER
- Talents Unlimited
- Creative Problem Solving
- DeBono's Six Thinking Hats
- Syntectics
- Creative Dramatics
- What else???

2

Characteristics of Giftedness: Creative

- reflective/need for time alone
 - artistic and aesthetic interests
 - attracted to novelty, complexity
 - tolerance for ambiguity
 - intuitive
 - open minded
 - perceptive
- (Davis, 1992)

3

Creativity Characteristics: Not-so-attractive

- tends to question laws, rules, authority
- indifferent to common conventions/courtesies
- stubborn, uncooperative, resists domination
- argues that the rest of the parade is out of step
- may not participate in class activities
- argumentative, cynical, sarcastic, rebellious
- demanding, assertive, autocratic
- low interest in details...

4

Creativity Characteristics: Not-so-attractive

- sloppy, careless, disorganized with unimportant matters
 - self centered, intolerant, tactless
 - capricious
 - temperamental, moody
 - emotional, withdrawn, aloof, uncommunicative
 - forgetful, absentminded, mind wanders
 - overactive physically or mentally
 - won't join Scouts
- (Davis, 1992, pp. 79-80)

5

Creativity: Cognitive Abilities

- fluency
- flexibility
- originality
- elaboration
- transformation
- sensitivity to problems...

6

Creativity: Cognitive Abilities

- able to define problems
- visualization, imagination
- analogical/metaphorical thinking
- able to predict outcomes, consequences...

7

Creativity: Cognitive Abilities

- analysis
- synthesis
- evaluation
- logical thinking
- able to regress
- intuition
- concentration

8

•Creativity: Biographical Characteristics

- Subtle
 - friends of different ages
 - owns a cat
 - imaginary playmate
 - lived in more than one state
 - traveled outside of US...

9

•Creativity: Biographical Characteristics

- Not-so-subtle
 - history of creative activities
 - building/making things
 - collections
 - artistic/handicraft interests
 - involvement in music, dance, or theater
 - unusual hobbies
 - writing

10

•Characteristics of Giftedness: Creative

- Personality Traits
 - aware of own creativeness
 - original
 - independent
 - risk taking
 - energetic
 - curious
 - advanced sense of humor...

11

Creative Process: Torrance

- Sensing a problem or gap in information
- Forming ideas or hypotheses
- Testing and modifying the hypotheses
- Communicating the results

12

Creative Process: Wallas

- Preparation
- Incubation
- Illumination
- Verification

13

SCAMPER

- Substitute
- Combine
- Adapt
- Modify, Magnify, Minify
- Put to other uses
- Eliminate
- Reverse, Rearrange

14

Creative Process: CPS

- Fact finding
 - Who did what, when, where, why, and how?
- Problem finding
 - "In what ways might we...?"
 - "What is the real problem?"
 - "Why do I want to do this?"
- Idea finding
 - brainstorming
- Solution finding
 - list criteria for evaluation
 - evaluate ideas
 - select one or more of the best ideas

15

DeBono's Six Thinking Hats



1. To simplify thinking by allowing a thinker to deal with one thing at a time.
2. To allow a *switch* in thinking.

16



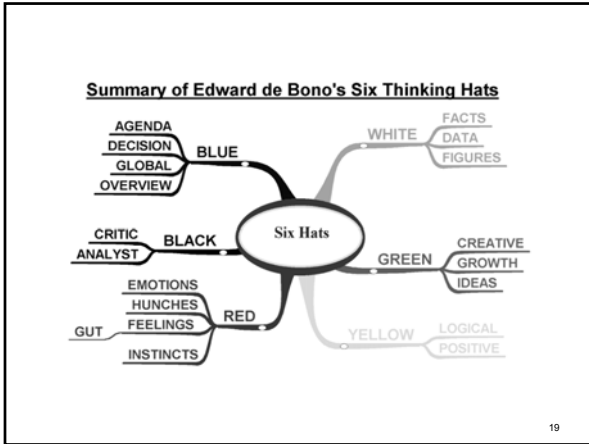
17

Why Thinking Hats?



- Argument versus Parallel Thinking
- A Changing World
- Directions and Hats
 - At any moment, everyone is looking in the same direction-but the direction can be changed.
 - "thinking caps"
 - Indicates a role that can be changed easily
- Directions not Descriptions
 - Not what happened, but what is *about to happen*

18



Issues

- Showing Off
 - One “shows off” by performing well as a thinker.
- Playing the Game
 - Remove the label from the person
 - Rules of behavior are spelled out
 - Encourage participants to “play the game.”

20

Issues

- Power
- Save Time
- Removal of Ego
- One Thing at a Time

21

Thinking as a Game

- I want you to take off your black hat.
- For a few minutes, let's all put on our red thinking hats.
- That's fine for yellow hat thinking. Now let's have the white hat.

22

Using the Hats

- *Single Use*: the hats are used as symbols to request a particular type of thinking.
- *Sequence Use*: the hats can be used in a certain sequence.
 - Any hat can be used as often as you like.
 - There is no need to use every hat.
 - The sequence may be made up of two, three, four or more hats.
 - There are two types of sequence: evolving and preset.


23

Using the Hats

- Discipline
 - Only the group leader may indicate a change of hat.
- Timing
 - Allow one minute per group member
 - Leader may extend time if ideas are forthcoming
 - Red hat: less time needed; one minute.

24

Using the Hats




- Guidelines
 - Some sequences appropriate for exploration, problem solving, dispute settlement, decision making, etc.
 - Blue hat should serve as bookends.
 - A red hat may be used immediately after there are already strong feelings on the subject.
 - Initial red hat should NOT be used if:
 - Boss, teacher, group leader has strong feelings
 - There are no preexisting feelings.

25

Blue hat should be serve as bookends


- First blue hat
 - Why we're here
 - What we're thinking about
 - The definition of situation or problem
 - Alternative definitions
 - What we want to achieve
 - Where we want to end up
 - The background to the thinking
 - A plan for the sequence of hats to be used



26


Blue hat should serve as bookends

- Final blue hat
 - What we have achieved
 - outcome
 - Conclusion
 - Design
 - Solution
 - Next steps



27


Using the Hats



- Guidelines
 - In an assessment situation, the yellow hat should be used before the black hat. If no value, no sense in proceeding.
 - Sometime may use red hat after final blue hat to reflect on "thinking performance."
 - What do we feel about our thinking?
 - Are we happy with the outcome?
 - Did we do a good job?

28

Using the Hats




- Group and Individual
 - Individual thinking
 - Reports or other communication
- Individuals in Groups
 - "We are now switching to the yellow hat. I want you to spend two minutes thinking on your own before we open the discussion."

29

White Hat

– White is neutral and objective. The white hat is concerned with objective facts and figures.



30

White Hat



- What information do we have?
- What information do we need?
- What information is missing?
- What questions do we need to ask?
- How are we going to get the information we need?

Hard ↔ Soft

31

Red Hat

- Red suggests anger (seeing red), rage and emotions. The red hat gives the emotional view.



32

Red Hat



- Feelings, emotions, intuition, hunches, impressions, intellectual feelings.
- The opposite of neutral, objective information.
- No need to justify.
- No need to give reasons or the basis.

33

Black Hat

- Black is somber and serious. The black hat is cautious and careful. It points out the weaknesses in an idea.



34

Black Hat

- **Most used and most important of all hats.**
- Cautious and Careful
 - How something does not fit our experience.
 - Why something may not work.
 - Pointing out difficulties and problems.
 - Staying within the law.
 - Keeping to values and ethics.
- Content and Process
 - Point out errors in thinking.
 - Question the strength of the evidence.
 - Does the conclusion follow?
 - Is it the only possible conclusion?
- The Past and the Future
 - What is likely to happen in the future?
 - Does this fit past experience?
 - What are the risks?
- Important NOT to overuse and abuse



35

Black Hat



Risks, dangers, obstacles, potential problems, and the downside of a suggestion.

- Assessment: Should we proceed with this suggestion?
- Design Process: What are the weaknesses that we need to overcome?
- Risks and Potential Problems in the Future: What may go wrong if we implement this suggestion?

36

Black Hat: Danger Will Robinson!

- The Black Hat is NOT a bad hat!
- It is the most *valuable* and *most used* of all the hats.
- You avoid danger to yourself, to others, and to the community.
- The emphasis is on critical thinking.



Yellow Hat

- Yellow is sunny and positive. The yellow hat is optimistic and covers hope and positive thinking.



38

Yellow Hat

- Speculative-Positive
 - Positive thinking.
 - Yellow is for sunshine and brightness.
 - Optimism.
 - Focus on benefit.
 - Constructive thinking and making things happen.



39

Yellow Hat

- The Positive Spectrum
 - When is optimism foolishness?
 - From the hopeful to the logical.
 - What is realism?
- Reasons and Logical Support
 - What is the positive view based upon?
 - Why do you think it will happen this way?
 - Background reasons for the optimism.



40

Yellow Hat

- Positive and constructive.
- Positive assessments.
- Positive spectrum
 - Dreams ↔ Practical
- Constructive, generative.
- Effective
- Speculative and opportunistic, yet permits visions and dreams.



41

Yellow Hat

- Constructive Thinking
 - Making things happen.
 - Proposals and suggestions.
- Speculation
 - Looking into the future.
 - The value of "if."
 - The best possible scenario.
- Relation to Creativity
 - Difference between constructive and creative.
 - Effectiveness and change.
 - New ideas and old ideas.



42

Green Hat

- Green is grass, vegetation, and abundant, fertile growth. The green hat indicates creativity and new ideas.



43

Green Hat

- Creative Thinking
 - New ideas, new concepts, and new perceptions.
 - The deliberative creation of new ideas.
 - Alternatives and more alternatives.
 - Change.
 - New approaches to problems.



44

Green Hat

- Lateral Thinking
 - Lateral thinking and its relation to creativity.
 - Humor and lateral thinking.
 - Pattern switching in a self organizing information system.
- Movement instead of Judgment
 - Using an idea as a stepping stone.
 - Where this this take me?
 - The forward effect of an idea.



45

Green Hat

- The Need for Provocation
 - Use of the word *po* (*provocative operation*).
 - The logic of the absurd.
 - Random provocation.
- Alternatives
 - Too easily satisfied.
 - Routes, options, and choices.
 - Levels of alternative.



46

Green Hat

- Personality and Skill
 - Is creativity a matter of skill, talent, or personality?
 - Changing masks is easier than changing faces.
 - Pride in the exercise of a skill.
- What Happens to the Ideas?
 - What happens next?
 - Shaping and tailoring ideas.
 - The concept manager.



47

Blue Hat

- Blue is cool, and it is also the color of the sky, which is above everything else. The blue hat is concerned with control, the organization of the thinking process, and the use of the other hats.



48

Blue Hat



- Control of Thinking
 - Thinking about thinking.
 - Instructions for thinking.
 - The organization of thinking.
 - Control of the other hats.
- Focus
 - Asking the right questions.
 - Defining the problem.
 - Setting the thinking tasks.

49

Blue Hat



- Program Design
 - Step by step.
 - Software for thinking.
 - Choreography.
- Summaries and Conclusions
 - Observation and overview.
 - Comment.
 - Summaries, conclusions, harvesting, and reports.
- Control and Monitoring
 - The chairperson.
 - Discipline and focus.
 - Who is in charge?

50

Conclusions

- "The biggest enemy of thinking is complexity, for that leads to confusion. When thinking is clear and simple, it becomes more enjoyable and more effective."



51

Synectics: The Art of Making Connections

- *syn*-bring together
- *ectics*-diverse elements
- Principle that by connecting seemingly irrelevant elements of thought, can spark new ideas that may be developed into feasible solutions to problems.

52

Synectics Training: Metaphoric Thinking

- Making the familiar strange and making the strange familiar.

53

Assumptions of Synectics

- The creative process is not mysterious; it can be described and it is possible to train persons to increase creativity.
- Creativity or invention in the arts or in science and engineering are similar and characterized by the same fundamental intellectual processes.
- The process by which an individual invents is directly analogous to the processes of group invention.

54

Assumptions of Synectics Processes

- By bringing creative process to consciousness and by developing conscious aids to creativity, we can increase the creative capacity of individuals and groups.
- In the creative process, the emotional component is more important than the intellectual, the irrational more important than the rational.
- The emotional, irrational elements must be understood in order to increase the probability of success in a problem solving situation.

55

The Essence of Synectics Training

- Psychological States
 - Detachment and involvement
 - Deferment
 - Speculation
 - Autonomy of the object
- Goal of theorists was to design procedures which would draw individuals into the "psychological states" necessary to bring about creative activity

56

Limits to Generative Thinking

- Maintaining inflexible criteria of what constitutes appropriate thinking
- Insistence on literalness
- Prematurely eliminating connections
- Self-censoring
- Self-punishment
- Listening for flaws

57

Uses of Synectics

- To enhance critical thinking
 - List attributes
 - Make comparisons
- To enhance creativity
 - See things in a new way
 - Generate alternatives
 - To enhance writing
 - To enhance problem solving abilities

58

The Essence of Synectics Training: Metaphoric Thinking

- Introduces conceptual distance between the student and the subject matter which is conducive to innovation and imagination.
- Provides the freedom and the structure for moving into creativity.
- Analyzing the adequacy of the metaphor forces the individual into seeing familiar situations in new contexts and from new viewpoints.
- Is helpful for getting unfamiliar topics or problems under control and internalized.

59

Excursions: The Heart of the Synectics Technique

- Put the problem out of mind.
- Focus on apparent irrelevancy.
 - Generates surprising or unusual connections.
- Force-fit the irrelevant material together with the problem and allow mind to fit new connections into an existing pattern or create new pattern.

60

Excursions: The Heart of the Synectics Technique

- Ask for a brief background statement.
- Solicit "springboards."
 - "I wish..."
 - Allows for many responses.
 - Unnecessary to defend a response.
- Roles include facilitator and client.
- "Itemized response."
 - Useful aspects of response and list concerns
 - Change to "How to"
- Avoid discount/revenge Cycle

61

Synectics

- Making the familiar strange and making the strange familiar.
 - Personal analogy
 - Direct analogy
 - Compressed conflicts

62

Synectics: Personal Analogy

- Individual becomes subjectively involved with the problem so that he identifies with and feels that (s)he has become part of the physical elements of the problem.
- Involves identification with a person, plant, animal, or non-living thing.
- Empathetic involvement.

63

Personal Analogy

- Machine: Have the class brainstorm all the words that describe a machine. Next, have 5 students form a machine's 5 moving parts. Each student chooses a motion, a sound, and a way the machine is connected to the adjacent parts. When the machine is "turned on," have each part begin to work in sequence. "Turn off" the machine and then restart it. This time have a middle piece break down and watch the effect one broken piece has on the machine. After the activity, have the class brainstorm more words to describe the machine. Notice the new understandings.

64

Personal Analogy

- Interview Summer: Tell the class that they are summer. Then ask questions like the following:
 - Who is your best friend, Summer?
 - What are you afraid of?
 - What do you do for fun?

65

Personal Analogy

- You are preparing the students to use personifications--I am summer, I play tag with the noontime shadows.

66

Synectics: Direct Analogy

- Involves making analogies which are inclusive, not identical, of the conditions of the real problem situations but which transpose them to another situation.
- Analogize the conditions of their problem into new settings.
 - Select the new setting
 - Work out the analogies to generate problem solutions

67

Direct Analogy

- An automobile wheel in rotation is like...
 - The cutter on a can opener.
 - The rotor of a helicopter.
 - The orbit of Mars.
 - A spinning seed pod.
 - A hoop snake.

68

Direct Analogy

- How is laughter like a smudge of peanut butter?
- How is a coffee pot like losing your temper?
- Which is louder? Having the attention of a crowd of people? Being ignored?

69

Levels of Involvement: Personal and Direct Analogy

- First person description of facts
- First person identification with emotion
- Empathetic identification with a living thing
- Empathetic identification with a non-living object

70

Synectics: Compressed Conflicts

- Two-word descriptions of an object where the words seem to be opposites or contradict each other.
 - Life-saving destroyer
 - Nourishing flame
 - Safe attack

71

Synectics: Compressed Conflicts

- Provides the broadest insight into a new subject and maximizes the surprise factor.
- Requires students to observe object from two frames of reference.
- Developed from traits used to define characteristics of object in the personal or direct analogy.

72

Synecotics: Compressed Conflicts

- Reflect students' ability to incorporate two frames of reference with respect to a single object.
- The greater the distance between the frames of reference (opposition), the greater the mental flexibility to creative development.

73

Symbolic Analogy: Compressed Conflicts.

- What is described by the terms wickedly delicious? Delicate armor? Silent storm?

74

Symbolic Analogy: Compressed Conflicts.

- Have the class give examples of things that share both characteristics and explain why and what causes the tension. Then have them choose a word that describes summer, like hot (burning, flaming, steamy). Then choose an antonym for hot, like cold. Change the form into a noun—coolness. Then brainstorm other synonyms for coolness, like ice, snow, frigidity, etc. Then randomly combine a word from list 1 with one from list 2 like steamy ice. If that were the name of a book, what would it be about?

75

Synecotics Protocols

- Stretching exercises
 - Get students loosened up
 - Series of short, loose comparisons to which students make verbal or written response
- Exploring the unfamiliar
 - Describe the analogy
 - Be the thing
 - Make connections and explain
 - Explain where analogy fails
 - Present own analogy
- Creating something new
 - See familiar things in unfamiliar ways: new understanding, design, idea

76

Stretching exercises

- How is a beaver chewing on a log like a typewriter?
- Which is softer a whisper or a kitten's fur?
- Imagine that you are a spider who is trying to spin a web on a rainy, stormy day. BE THE THING! As the spider, what does the storm do to you and how do you feel about it?
- Delicate armor describes...
- An example of repulsive attraction is...

77