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# Creative Problem Solving

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# sus+

Innovative Education towards  
Sustainable Food Systems

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# Intended Learning Outcomes

After this lecture students should be able to:

1. Classify approaches to problem solving.
2. Explain the difference between creativity and innovation.
3. Give examples of Creative Problem Solving tools and techniques.

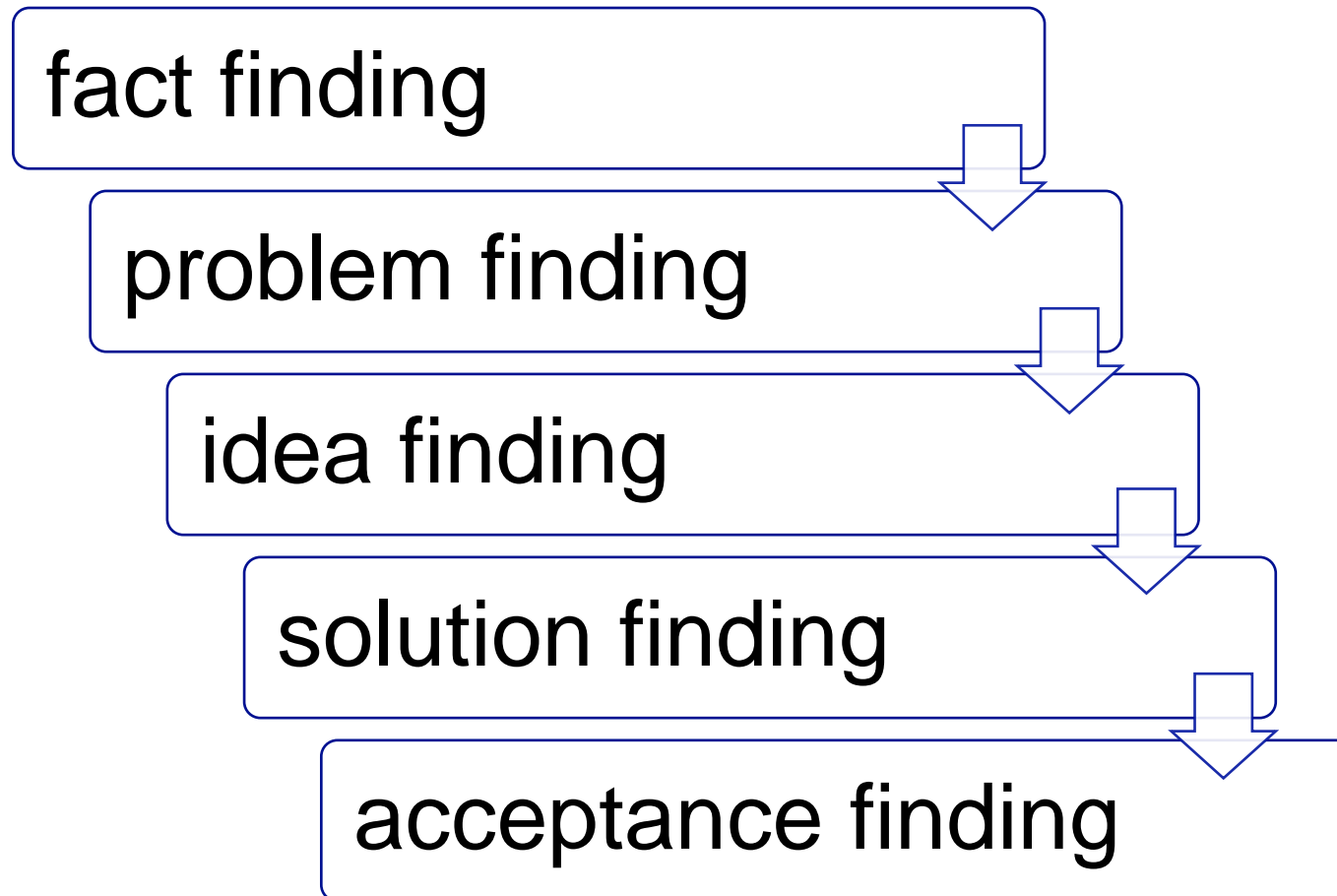
# Problem Solving

1. You find a mess (a problem).
2. You define a problem.
3. You decide on your approach:
  - a) analytical
  - b) creative.

# Creativity and Innovation

- What is creativity?
  - very simply: the ability to come up with something new or original
- What is innovation?
  - very simply: the use of a new idea or method
- What's the difference between creativity and innovation?

# Creative Problem Solving



Source: Vidal (2010)

# Creative Problem Solving

Example techniques along the creativity continuum

## paradigm-preserving (low stimulation)

- brainstorming
- brainwriting
- hexagons
- 5W+1H
- force field analysis
- word diamond
- ABC-method
- sticky dots
- concept triangle

## paradigm-stretching (medium stimulation)

- metaphors
- object stimulation
- reversal
- assumption reversal
- role storming
- group doodling
- heuristic ideation technique

## paradigm-breaking (high stimulation)

- wishful thinking
- wildest ideas
- imagining
- rich metaphors
- rich pictures
- picture stimulation and collages

Sources: McFadzean (1998, 1999, 2000)

# Creative Problem Solving

An example with instructions for each level



## ABC-Method

- The problem statement exists, formulated as a question.
- Participants list all letters of the alphabet.
- Beginning at any point, every letter is completed with an idea.

## Group Doodling

- Participants each have a writing surface and an implement.
- At a sign each starts doodling.
- After about 2 minutes participants rotate 2 or 3 places and continue doodling on the doodle now in front of them.
- Repeat once or twice.

## Wishful Thinking

- The problem statement exists.
- Participants are asked to assume that everything is possible.
- They develop fantasy statements about the future.
- They are asked to develop ideas how to achieve these outcomes.

Sources: ENLP (n.d.): ABC-Method; Creative Education Foundation (2015): Group Doodling; McFadzean (1999): Wishful Thinking



# Lateral Thinking

## Edward de Bono's technique: 6 Hats



### Blue Hat

- **Process**
- Put on the blue hat and manage the thinking process.
- What thinking hat needs to worn next?
- How can it be planned and organised?
- What is the bigger picture?



### Yellow Hat

- **Benefits**
- Put on the yellow thinking hat and focus on the Positives
- What are the advantages, benefits, value, use, worth, good points, feasibility, opportunity?



### Red Hat

- **Feelings**
- Put in the red hat and focus on emotions.
- What are hunches, intuition, gut instinct and reactions?



### White Hat

- **Facts**
- Put on the white hat and focus on neutral and objective data.
- What do I know and what do I need to find out and how will I do so?



### Green Hat

- **Creativity**
- Put on the green hat and focus on what new ideas are possible.
- What are ideas, alternatives, possibilities, other solutions, changes, concepts, innovations?



### Black Hat

- **Caution**
- Put on the black hat and focus on critical judgement.
- What are problems, difficulties, disadvantages, risks, weaknesses, reasons why it might not work?

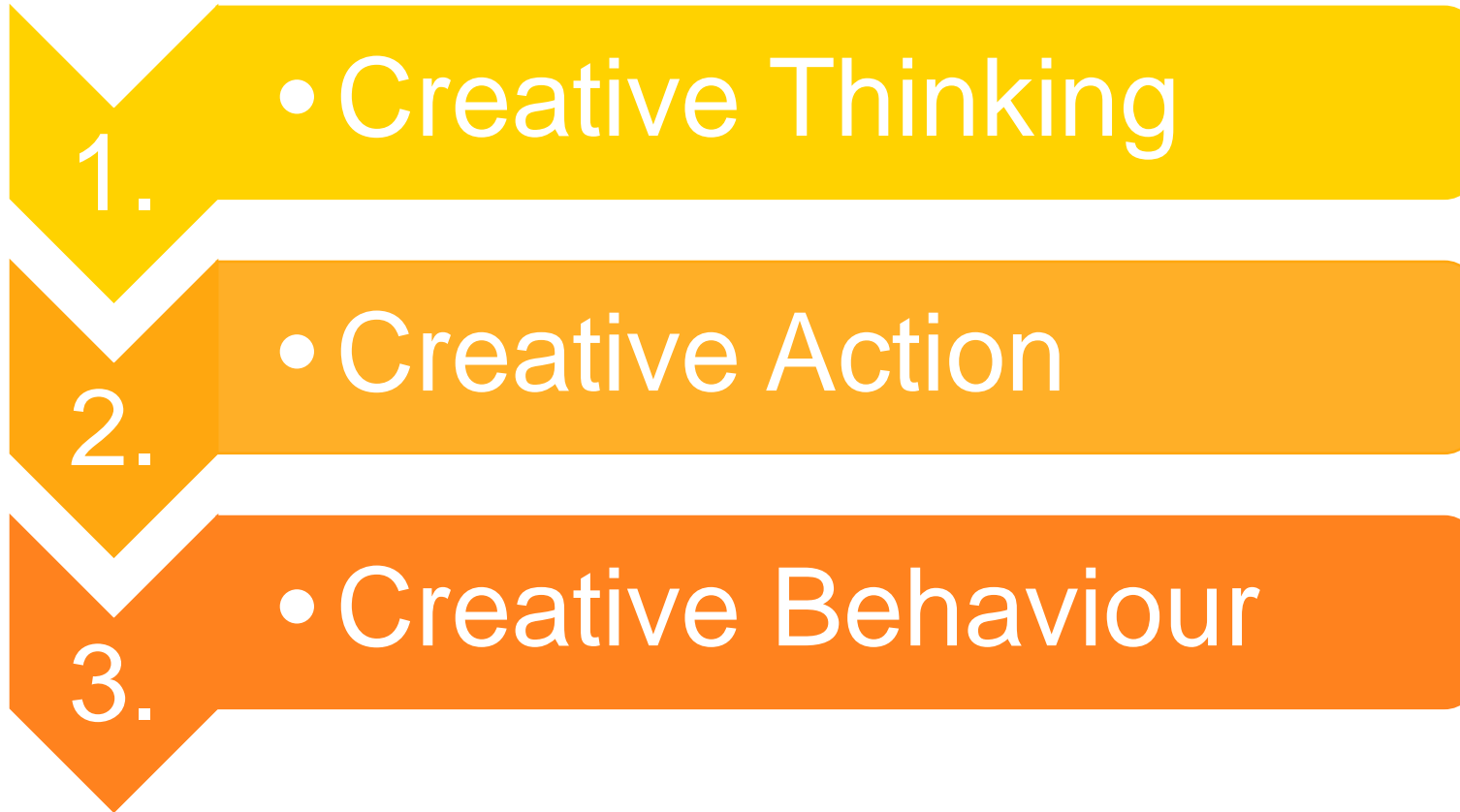
Sources: (elaborated on) de Bono Thinking Systems, The de Bono Group (online)





# Synectics ...

... is an approach to invention with three elements

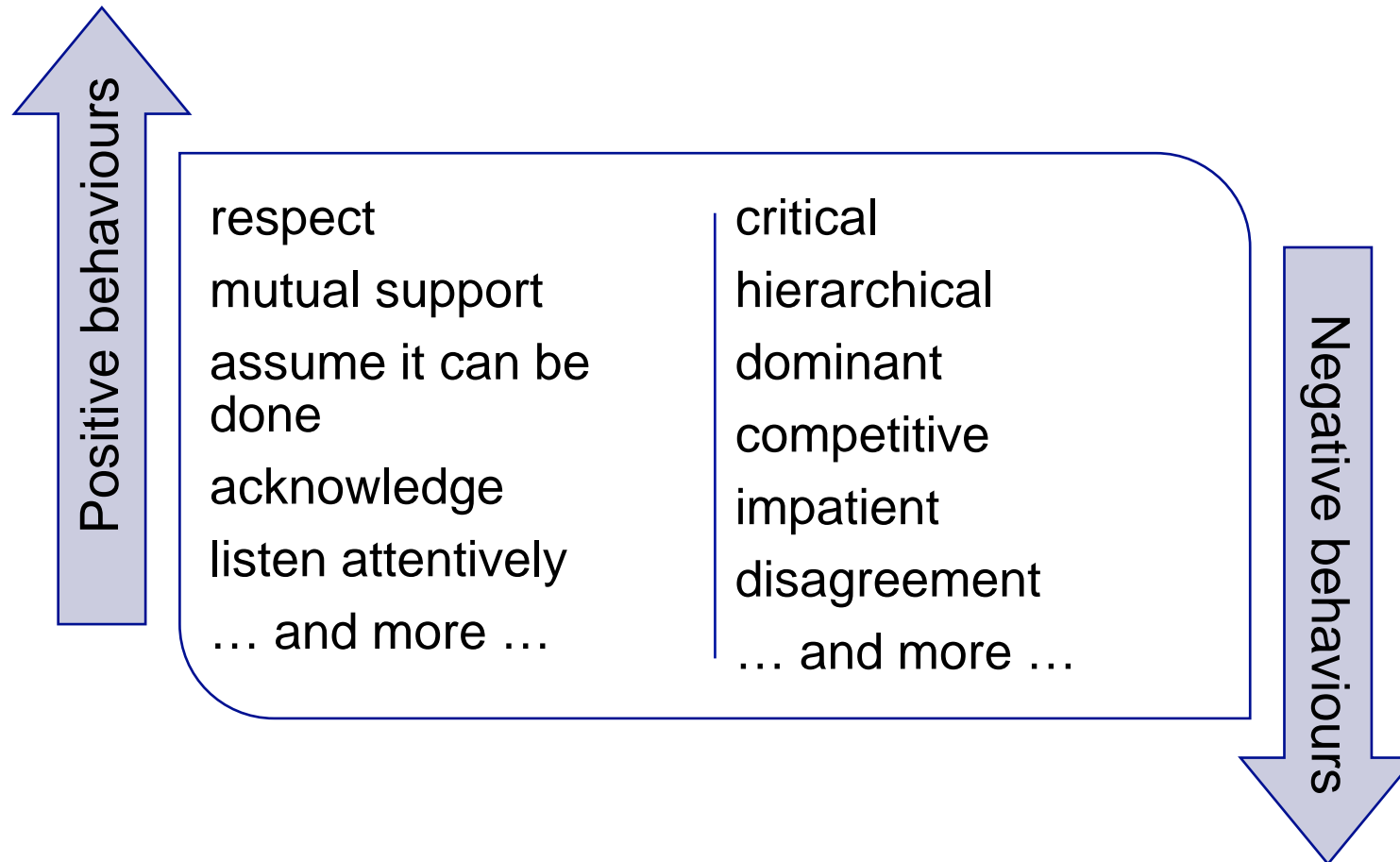


Source: Nolan (2010)



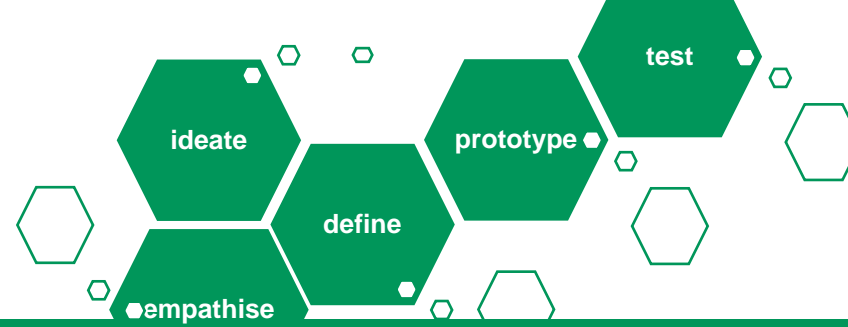
# SynNovation

... building on Synectics ...



Source: Prekel & Sobey (2012)

# Design Thinking

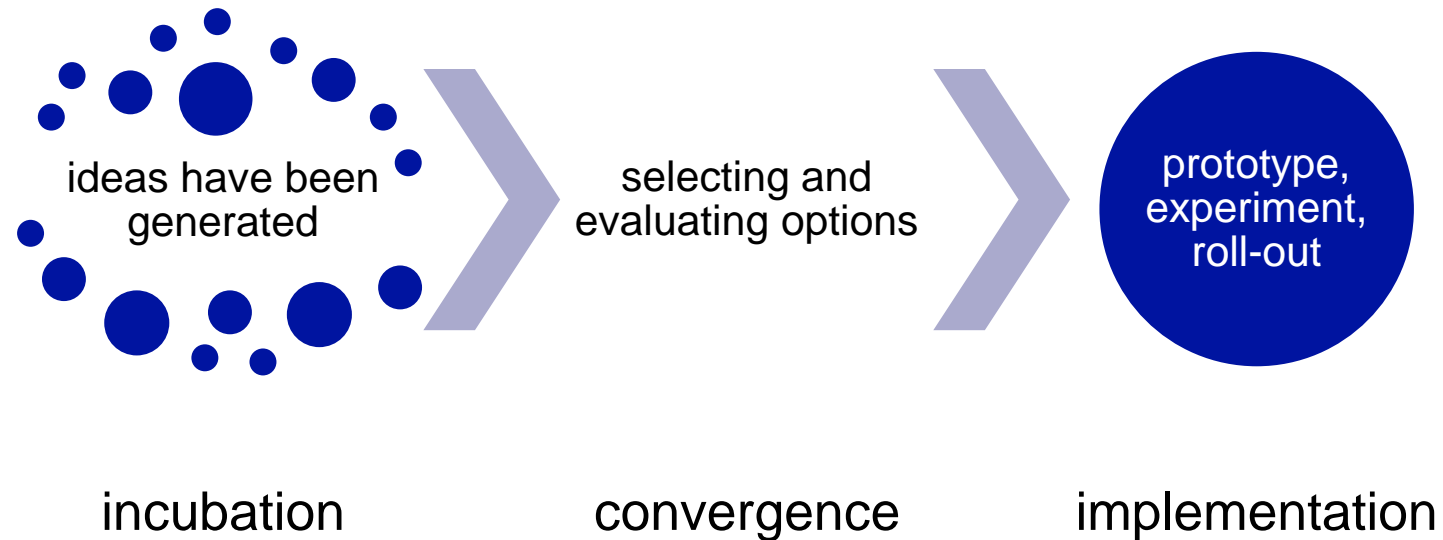


**„Design thinking is a human-centered approach to innovation that draws from the designer’s toolkit to integrate the needs of the people, the possibilities of technology, and the requirements for business success.“**

Tim Brown, IDEO, 2017

# Moving forward ...

... from the ideas to the solutions



Source: (adapted from) Leonard & Swap (1999)

# Summary

1. Problems and opportunities need to be clearly identified and articulated in order to apply creative problem solving methodology. It is not necessary to know all facts about the problem.
2. There are many creativity techniques available, some of which are best implemented with a skilled facilitator to overcome potential barriers.
3. Creative problem solving approaches can contribute to resolving complex issues in sustainable development that have no simple polar answer such as “yes” or “no”.



# Thank you!

See paper:

Creative Education Foundation (2015) Creative Problem Solving Tools & Techniques Resource Guide. Available at: <http://www.creativeeducationfoundation.org/wp-content/uploads/2015/06/ToolsTechniques-Guide-FINAL-web-watermark.pdf>

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# Reference List



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