

S H A R E

Technology • Connections • Results

Want Better Solutions? Think *Differently!*



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Our thinking

- ❖ We average 40,000 thoughts/day**
- ❖ 90% of our thoughts are ‘negative’**
- ❖ 75% are the same as yesterday’s**
- ❖ Most of the time we’re on ‘autopilot’**
- ❖ Creativity is significantly inhibited**

Source: Skillpath Seminars



The human brain

- ❖ **Memory capacity:**
1,000,000,000,000,000 bits of info
- ❖ **Brain cells = neurons**
- ❖ **100 billion neurons**
- ❖ **Neurons communicate via ‘synapses’**

Source: ‘The Brain Book’, by Peter Russell

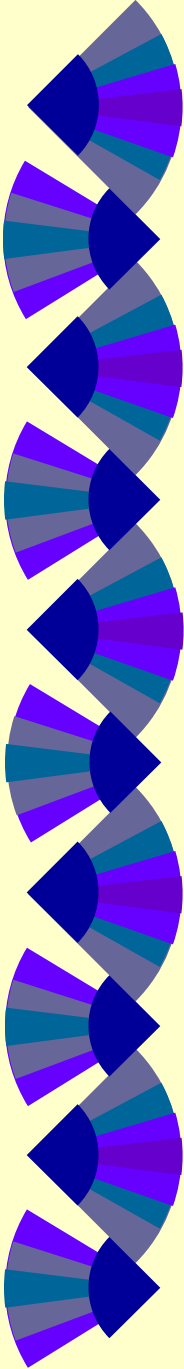


‘Neuron connections’

- ❖ **Dendrites & Axons**
- ❖ **Neural pathways**
- ❖ **Research: dendrite growth**
- ❖ **Peak processing power of**
20 million MIPS !*
(100 billion neurons * 1000 connections * 200)

Source: ‘Psychology Today’ February 2000

(* estimate - your ‘milage’ may vary)



‘Linear’ thinking

AKA ‘convergent’ or ‘vertical’ thinking

- Works effectively for facts & ‘well-known’ problems

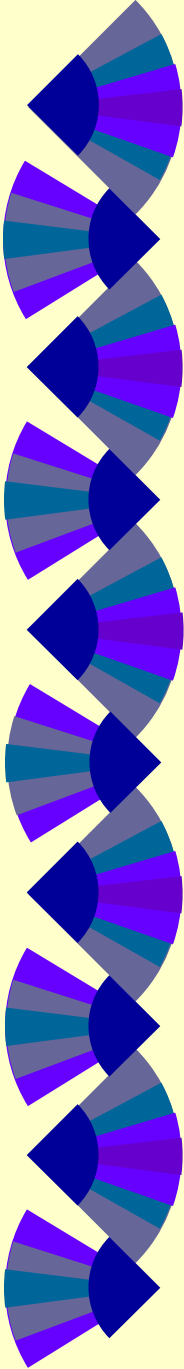
Examples: history facts, finite math

‘Focused’ problem solving: ‘ROSE’

- seeks ‘the’ answer

Convergent thinking involves the pursuit of a pre-determined goal, usually in a linear progression, focused on arriving at a single solution.

Research - determine Objective - devise Strategy - Execute



Limitations of 'linear' thinking

- ❖ **Quest for a 'single' answer**
- ❖ **Reliance on 'known' solutions**
- ❖ **'Old' answers inadequate for solving 'new' problems**
- ❖ **Low neuron/dendrite activity**

“You can't solve today's problems at the same level of thinking you were at when you created them”

- *Albert Einstein*



‘Non-linear’ thinking

AKA ‘lateral’ or ‘divergent’ thinking

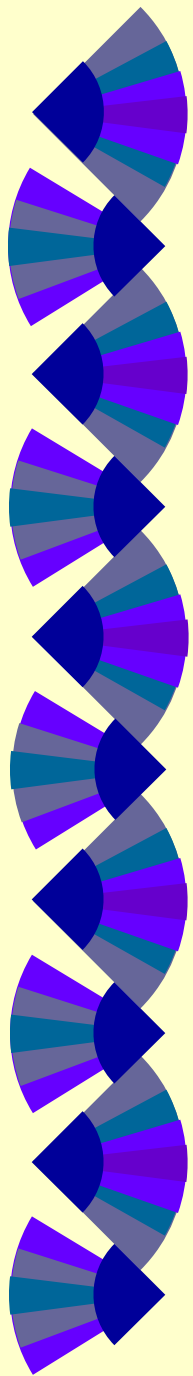
- Useful for developing multiple solutions through creative means

Examples: complex or ‘new’ problems

The means determines the end - process

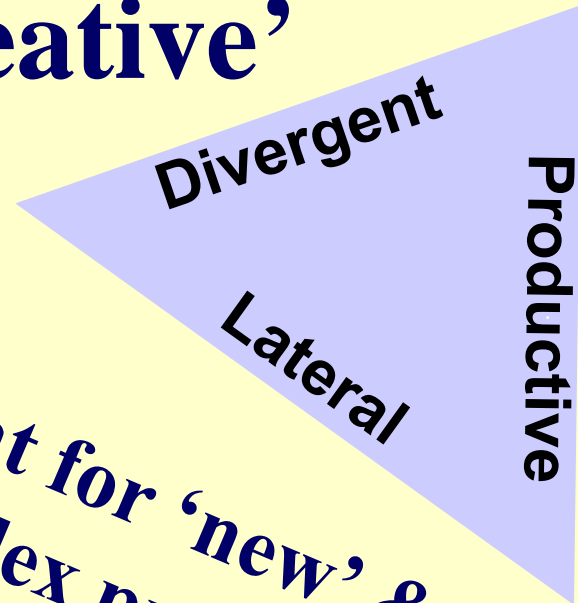
- seeks many **different** answers

In divergent thinking, the process is of primary importance and the outcome is open-ended. This opens up multiple lines of inquiry, moves beyond pre-conceptions and helps generate many possible solutions.



‘Creative’

thinking



The means determines the end – the process is of most importance

Great for ‘new’ & complex problems

What if?

These forms of thinking promote new approaches to problems and result in multiple ‘fresh’ solutions

Challenge what is already ‘known’

“The best way to have a good idea is to have a lot of ideas.”

-Linus Pauling

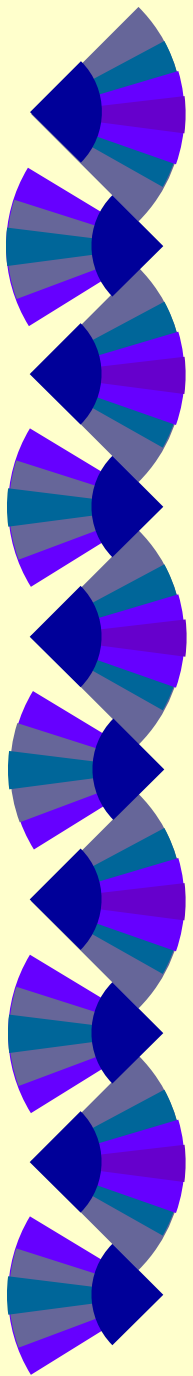


Advantages of 'non-linear' thinking

- ❖ **Allows freedom to explore ideas**
- ❖ **Permits 'naïve' solution finding**
- ❖ **Gives 'permission' for 'wild' and 'the sky's the limit' thinking**
- ❖ **Enables combination solutions**

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What blocks our creativity?

The right answer

It's not my area

It's not logical

Don't be foolish

The 'rules'

Avoid ambiguity

Be practical

To err is wrong

Play is frivolous

I'm not creative

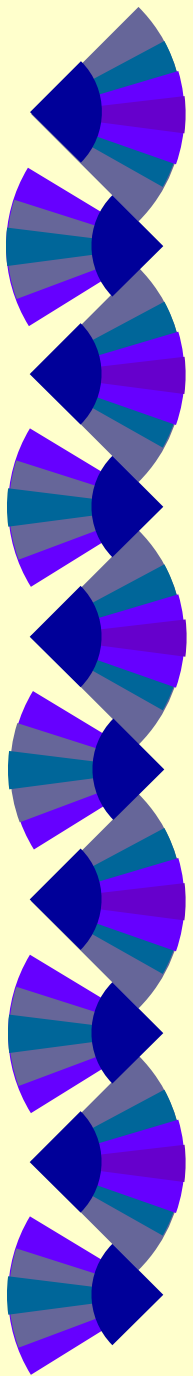
Source: 'Ten Mental Locks' from 'A Whack on the Side of the Head', by Roger von Oech



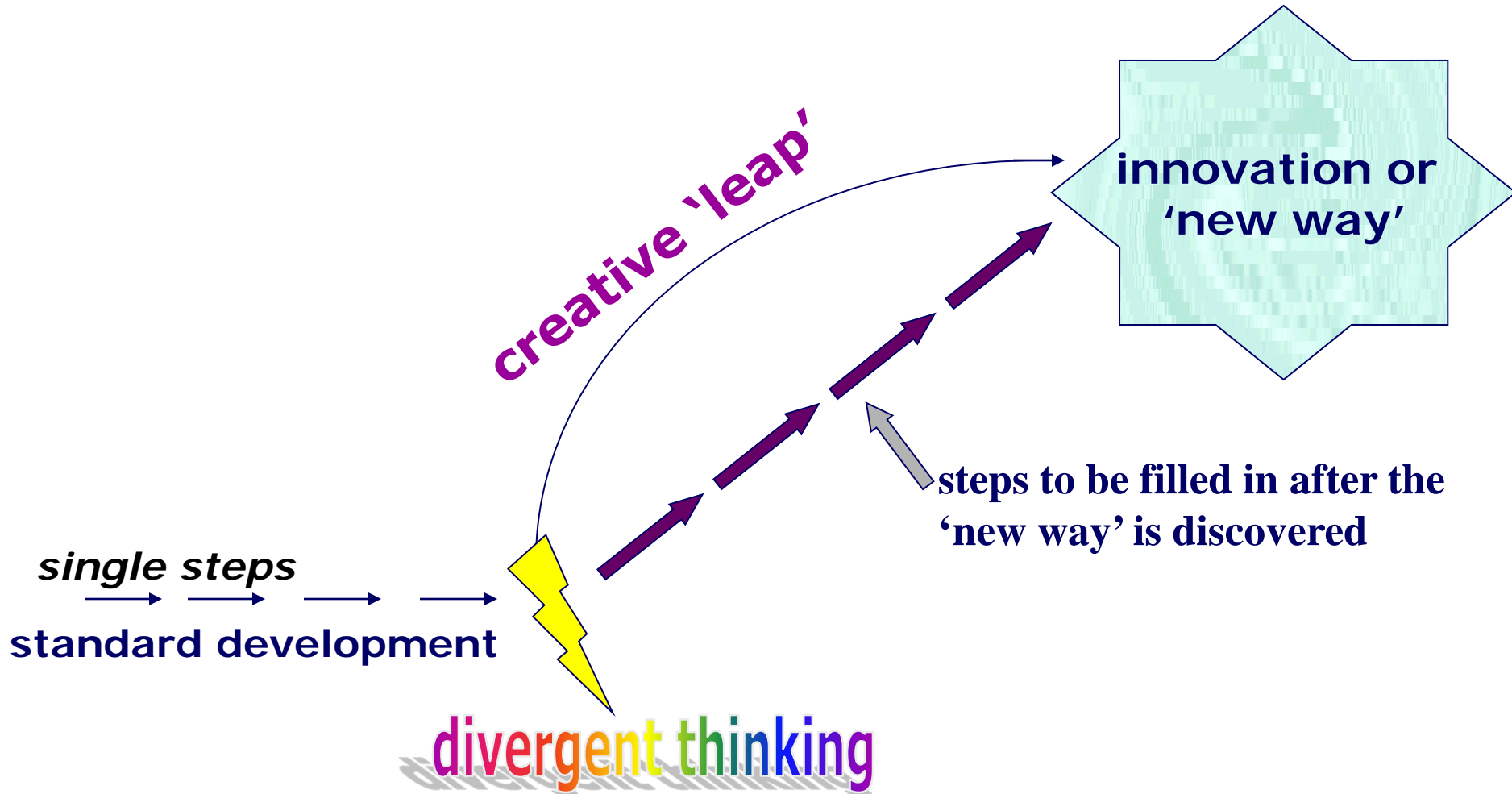
‘Creative thinking’

HOW?

- ❖ Imitate nature
- ❖ ‘Dream up’ a solution
- ❖ Ask ‘naïve’ questions
- ❖ Discover something ‘accidentally’
- ❖ Capitalize on a ‘failure’
- ❖ Assume the impossible is possible
- ❖ Innovate out of necessity



Inside the creative process





Practical application

Solving Real Problems

- **Clear statement of the problem**
- **Select a tool and generate ideas**
- **Identify the best (most feasible) and wildest (innovative) solutions**

“Lateral thinking is like the reverse gear in a car. One would never try to drive around in reverse gear the whole time. On the other hand, one needs to have it and to know how to use it for maneuverability and to get out of a blind alley”

- Edward de Bono



Problem statement

A good problem statement:

**defines WHAT the problem is and
identifies WHERE and WHEN it occurs**

...and avoids:

opinions, solutions, conclusions, and actions



Brainstorming



Objective: generate as many ideas as possible in the time allotted

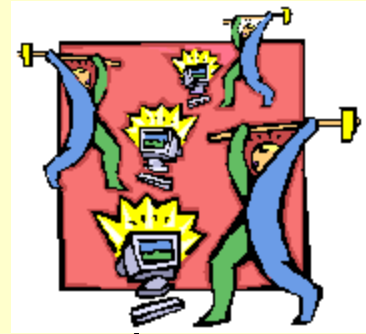
Guidelines:

- ❖ **clear problem statement**
- ❖ **no judgement of ideas**
- ❖ **capture ideas as they are spoken**
- ❖ **building on ideas is encouraged**

“If you can dream it you can do it.”

- Walt Disney

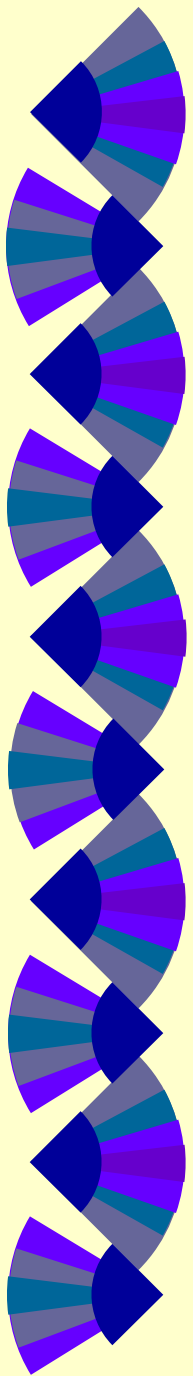
Assumption smashing



Objective: challenge assumptions to remove barriers to solutions

Guidelines:

- 1) Recognize the assumptions**
- 2) Record them**
- 3) Challenge them with questions**
- 4) Seek out the facts**
- 5) Attack the problem again**





Innovation transfer

Objective: generate different solutions through analogies

Guidelines:

- ❖ **list a common problem in column A along with a list of ‘well-known’ solutions**
- ❖ **focus on the target problem and derive solutions using analogies from column A**

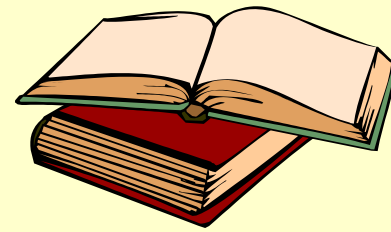
“Creativity involves breaking out of established patterns in order to look at things in a different way.”

- *Edward De Bono*

Innovation Transfer Example

<p>‘Common Problem’:</p> <p>Computer system performance is too slow</p> <p><i>Solutions:</i></p>	<p>‘Target Problem’:</p> <p>Children are unable to agree on what video to rent</p> <p><i>Solutions:</i></p>
<p>1) Add capacity to computer system</p>	<p>Rent two videos instead of one Increase number of children - majority</p>
<p>2) Buy a new computer system</p>	<p>Buy a Blu-ray player and limit choices Buy a second DVD player</p>
<p>3) Identify & correct the main cause</p>	<p>Discuss specific video to see disagreement Analyze the most difficult child’s reasons</p>
<p>4) Reduce workload on the system</p>	<p>New rule: quick agreement or no video Have them take turns deciding</p>
<p>5) Tune the system</p>	<p>Use a random selection if they can’t agree Have the parent pick a ‘worse’ video</p>
<p>6) Use a different computer</p>	<p>Have them watch TV (free) instead Limit TV viewing to educational pgms</p>
<p>7) Offer incentives for offshift work</p>	<p>Offer special snacks if they agree quickly Whoever acquiesces gets more snacks</p>

Resources



Books:

A Whack on the Side of the Head, Roger von Oech

The Creative Problem Solver's Toolbox, Richard Fobes

The Brain Book, Peter Russell

Life Magazine, July 1994, 'Building a Better Brain', Daniel Golden

Conceptual Blockbusting: A Guide to Better Ideas, James Adams

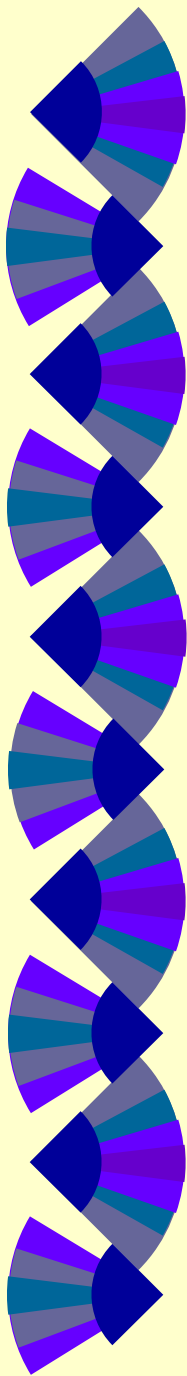
Websites:

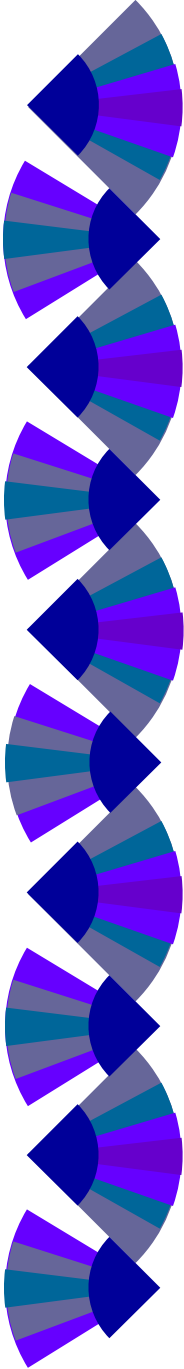
Search on CREATIVE PROBLEM SOLVING

<http://introductorystats.wordpress.com/2011/01/28/what-science-learned-from-a-group-of-elderly-nuns/>

Seminars:

Skillpath: 'How to Think Outside the Box', May 1997





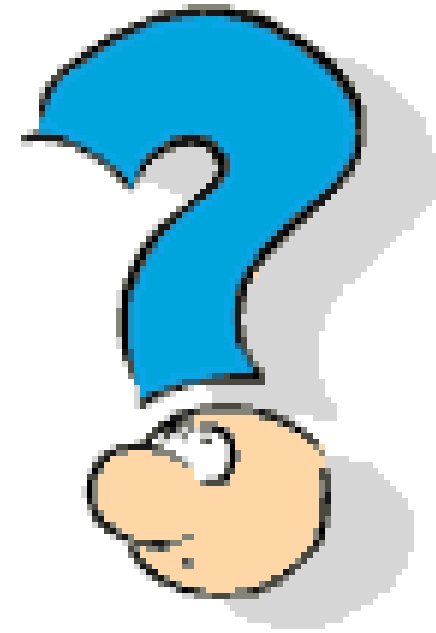
**For questions or if you want
help in solving a problem**

Email: georgediorio@gmail.com

Subject: Think



creative!



**"When the student is ready, the teacher will appear."
*Chinese proverb***