

SCIN 101

Creative Thinking and Innovation

Handout

Why should we think?

- Preparation of coming events
- Problem-solving
- Improvements (life, job, sports)
- Understanding the world and reality (objectivity)

What is thinking?

Wikipedia

Thought encompasses an "aim-oriented flow of ideas and associations that can lead to a reality-oriented conclusion". Although thinking is an activity of an existential value for humans, there is still no consensus as to how it is adequately defined or understood.

Other definition

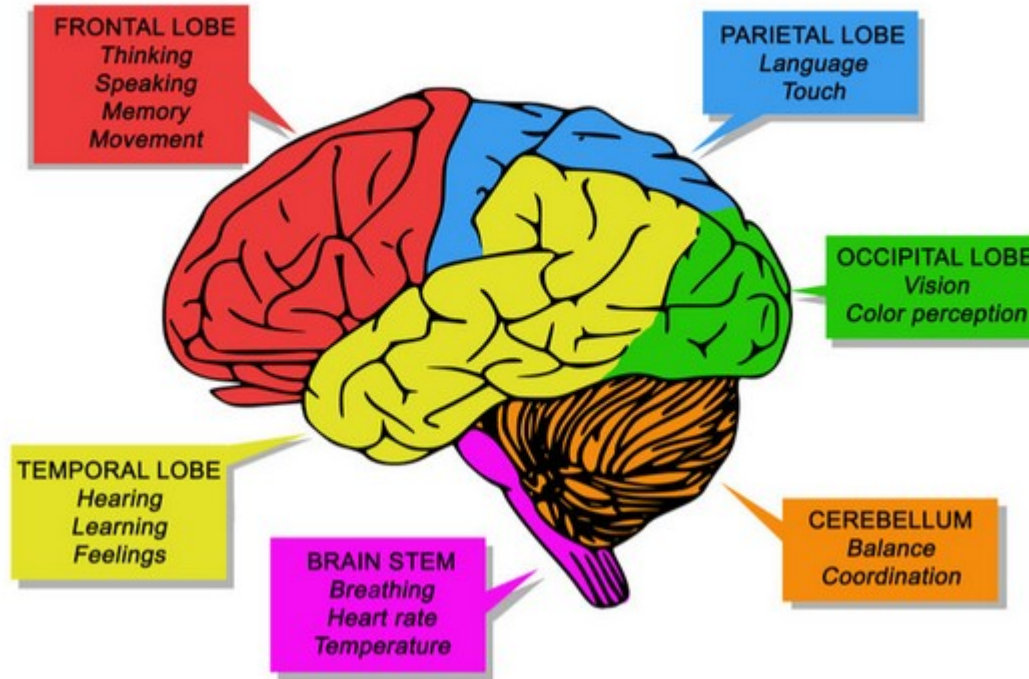
Thinking is most conscious and inherent activity of the mind to reach understanding of reality and being able to modify it.

Active/Passive Thinking

Stressituation: Impaired thinking capacity in stress situations passive thinking = Thoughts
the classic: Missing an Event. Early plane to catch! Slept too long.

Active thinking: preparation, coordination of future events problem solving

What part of the brain deals with thinking



Thinking experiments

Thinking is associated/driven by condensed or extended speech

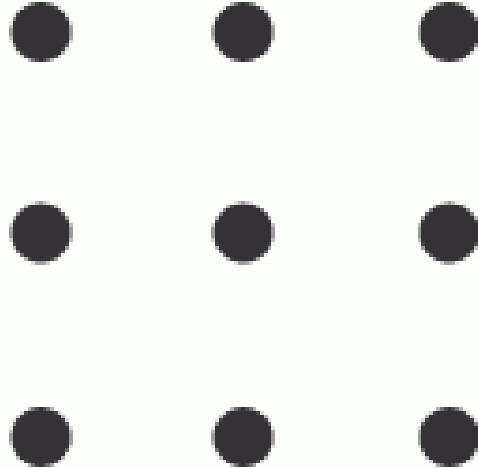
1. How would you learn to make bread.

The best&most efficient way to learn would be through A baker, the internet, your friend or trial and error.

2. How to make bread; Describe your thinking experience

3. Think aloud test: How would you make a bread!

Thinking Experiment
Creative thinking
Problemsolving



Link all 9 dots using four straight lines or fewer without lifting the pen and without tracing the same line more than once

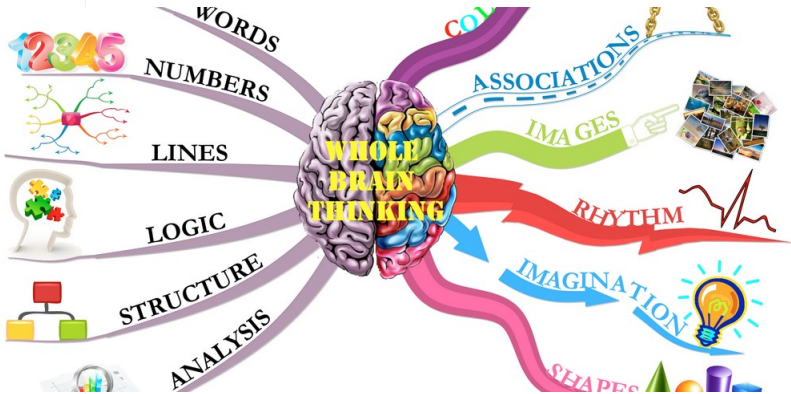
What is creative thinking? Non-logics

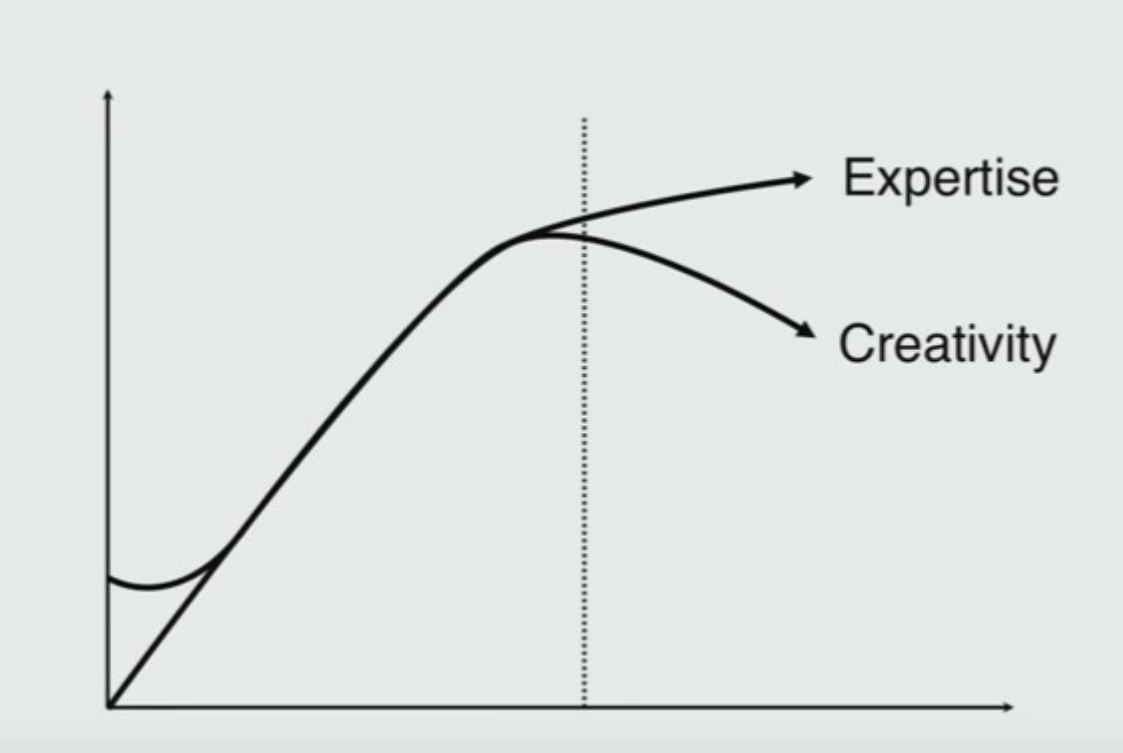
Levels of creativity

- Art
- Problem-solving
- Improvements (life, job, sports)

Blocks of creativity

- Fear of change
- Following rules
- Unaware of self-empowerment





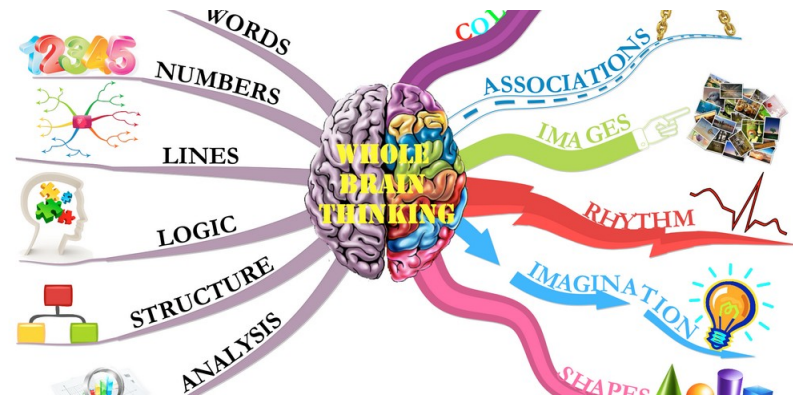
Thinking, Language and Creativity

- Perception (Russian language color experiment)
- Spatial thinking (Kuuk Thaayorre experiment)
- Temporal thinking
 - vertical/horizontal thinker
 - amount/length thinker
- Grammatical Gender

Learning a new language = learning a new way of thinking = becoming more creative

What is Creativity?

“Creativity is a combinatorial force: it’s our ability to tap into our ‘inner’ pool of resources – knowledge, insight, information, inspiration and all the fragments populating our minds – that we’ve accumulated over the years just by being present and alive and awake to the world and to combine them in extraordinary new ways.” — Maria Popova, Brainpickings



Imaginative → Creative

Creativity is the act of turning new and imaginative ideas into reality. Creativity is characterised by the ability to perceive the world in new ways, to find hidden patterns, to make connections between seemingly unrelated phenomena, and to generate solutions. Creativity involves two processes: thinking, then producing.

Practicing Creativity

- Circumstantial
 - Awareness of Negative thinking (breaking the negative triad of self, the world, and future)
 - Language
 - Behavior own and imposed (rules in life?)
 - Life style (social, hobbies, nutrition etc)
- Practice
 - Randomness and Associating exercise (**Creativeness is the ability to see relationships where none exist**)
 - Questioning (challenging common wisdom)
 - Observing (scrutiny)
 - Networking (meeting people with other ideas and perspectives)
 - Experimenting (Black box tests → unknown mechanism, unknown outcome)
 - Insights during sleep
 - Dissolution of left and right brain activity by physical exercise

What is Innovation?

- Novelty
- Improvement
- Availability → innovation relates to the market and is the realization of a new product in the market.

What is the difference between Innovation and Invention

- Invention has potential to innovation (invention comes always first) (patented invention must have potential for innovation)
- Invention must be new
- Invention must be unique (gap of newness)
- Invention defines devices, methods, procedures, compositions

Disruptive Innovation



What is the difference between disruptive and revolutionary innovation?



Understanding problem-solving, creativity and innovation

- Plastic garbage world wide → Do we have a problem?

- How to solve the problem?

Creativity → Innovation

Creativity → behavioral change

Creativity → material cycle → Innovation

