



# A Discussion on Creativity

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# Discussion Points

- Creativity Primer with exercise
- The Neuroscience of the Creative Process
- How to Promote Creativity in your life- general examples

# Summary: The Creativity Gap

Unlocking creative potential seen as key to economic and societal growth

But globally less than half describe themselves as creative

Only 1 in 4 people feel that they are living up to their creative potential

Workplace Creativity Gap: There is increasing pressure to be productive rather than creative at work

People spend only 25% of their time at work creating

Globally, Japan is regarded the most creative country, except by the Japanese

Universal concern that educational system is stifling creativity

Americans express strongest concern that they're NOT living up to their creative potential

Americans believe the US is the most creative

# Creativity is a skill which can be actively enhanced

- Certain people are predisposed to be more creative, but anyone who can learn and comprehend can be creative
- There is time for creativity (break out of task-centric mindset)

The more ideas you generate, the higher the quality the final solution. Quite often, the highest quality ideas appear at the end of the list.



## Iconoclasts:

people defying common beliefs or practices

- Bill Gates, Steve Jobs, Jonas Salk, Walt Disney
- iconoclasm is not an all-or-none phenomenon

# Being Creative = Unlearning Behaviors

- George Land's 1968 study: measuring creativity over time
  - 5 year olds – 98% are creative
  - 10 years – 30%
  - 15 years – 12%
  - Adults – 2%
- Creativity can become stifled by our task focused behaviors—historically schools promoted memorization of facts, moving towards guide on the side vs. sage on the stage
- Creativity can be re-learned (you can “unlearn” uncreative habits)
  - Experiment and explore
  - Question and upend assumptions
  - Use imagination
  - Synthesize information
  - Get new inputs

# Essential and Desirable Attributes



## Essential

- being open-minded
- a willingness to take risks
- communication skills for explaining ideas
- persistence and tenacity: a determination to see your idea through

## Desirable

- specific technical ability
- analytical skills to back up ideas and show why they are useful
- shaping skills to make ideas workable



# Creativity- Not just creative arts

- Widely variable meaning to individuals.

## 3 Components of Creativity

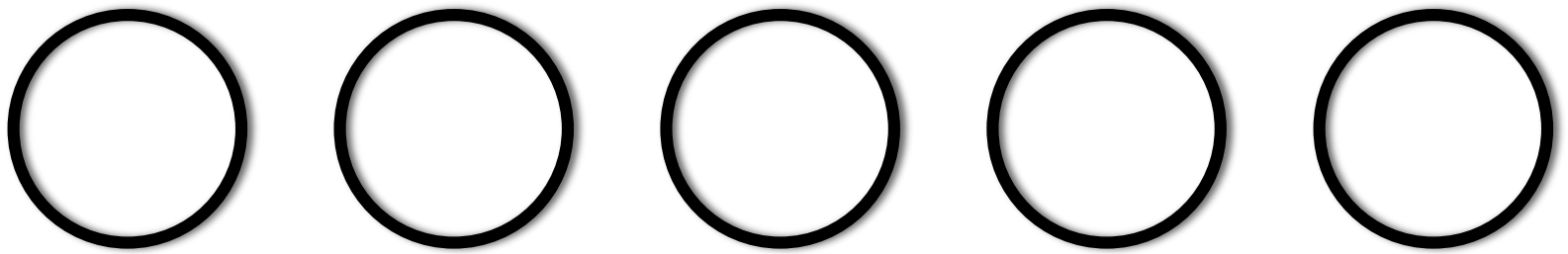


Source: T.M. Amabile,  
Harvard Business Review Oct. 98

- In general, creativity is the ability to generate new ideas, make new connections between ideas, and solve problems.



Use the circles as a starting point for drawings. Draw for 2 minutes.



# The Guilford Measures: measuring a person's creativity



## Fluency

- how many responses



## Flexibility

- how many types of responses



## Originality

- the unusualness of the responses



## Elaboration

- the detail of the responses

Use the circles as a prompt for drawing. Draw for two minutes.

Anna



face



face



face



face



face

highest fluency  
most responses

Benji



face



wheel



ball



highest flexibility  
most types of responses

Carol



wheel



wheel



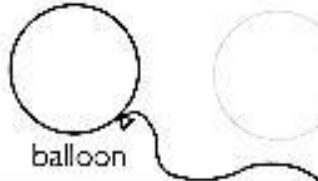
ball



Darlene



bomb



balloon



highest originality  
most unusual responses

Eric



face



face

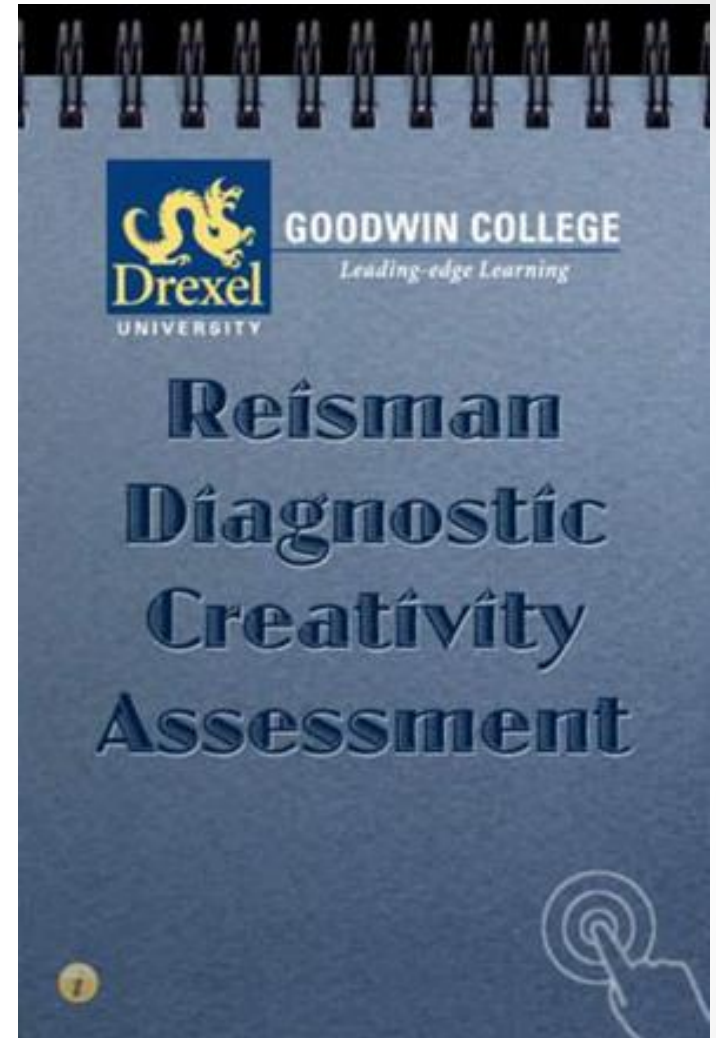


face



highest elaboration  
most detailed responses

Originality  
Fluency  
Flexibility  
Elaboration  
Tolerance of Ambiguity  
Resistance to premature closure  
Divergent thinking  
Convergent thinking  
Risk Taking  
Intrinsic motivation  
Extrinsic motivation



# ?What! Creativity Behaviors

## **PLAYFULNESS**

Getting people  
in a great  
mental space to  
have ideas



## **INTUITION**

Not taking  
things at  
face value



## **CURIOSITY**

Challenging  
assumptions  
every day

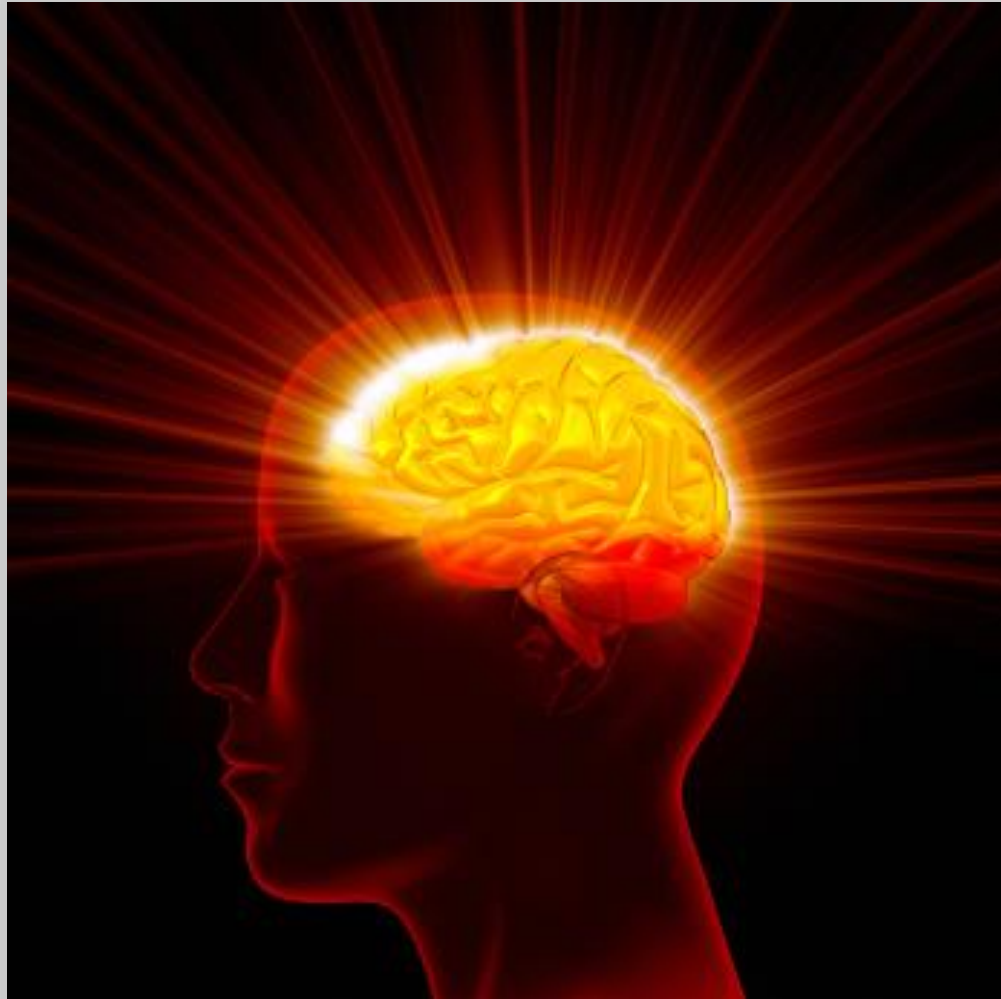


## **BRAVERY**

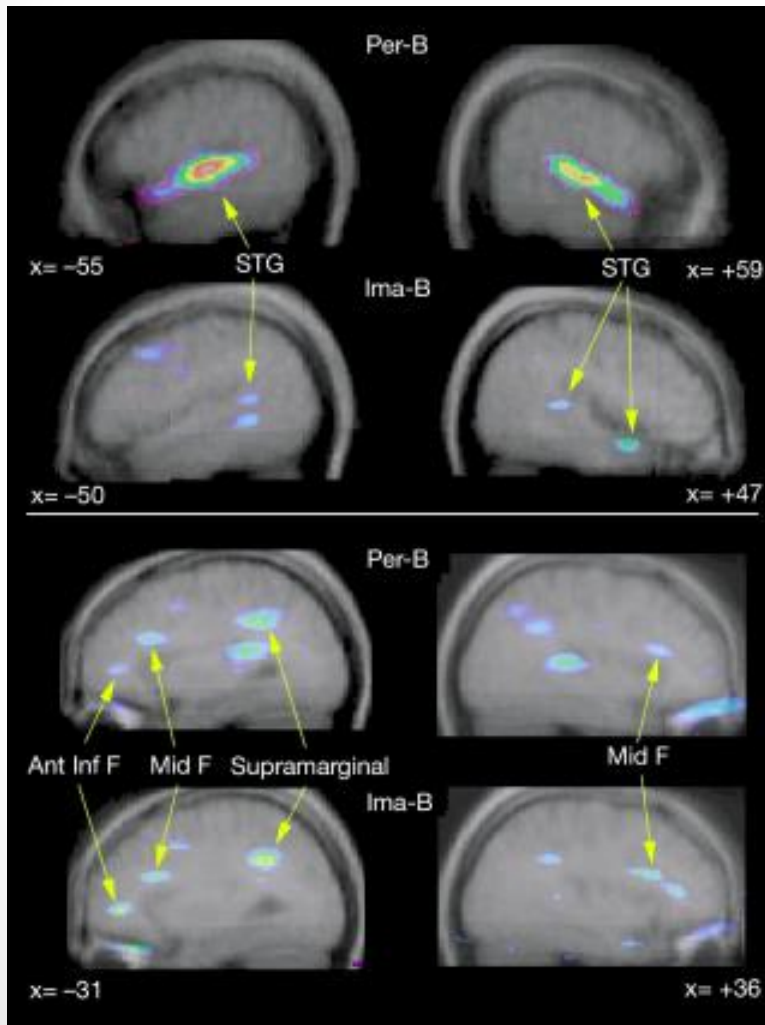
Having the  
courage to try  
something that  
you haven't  
tried before



# Neuroscience

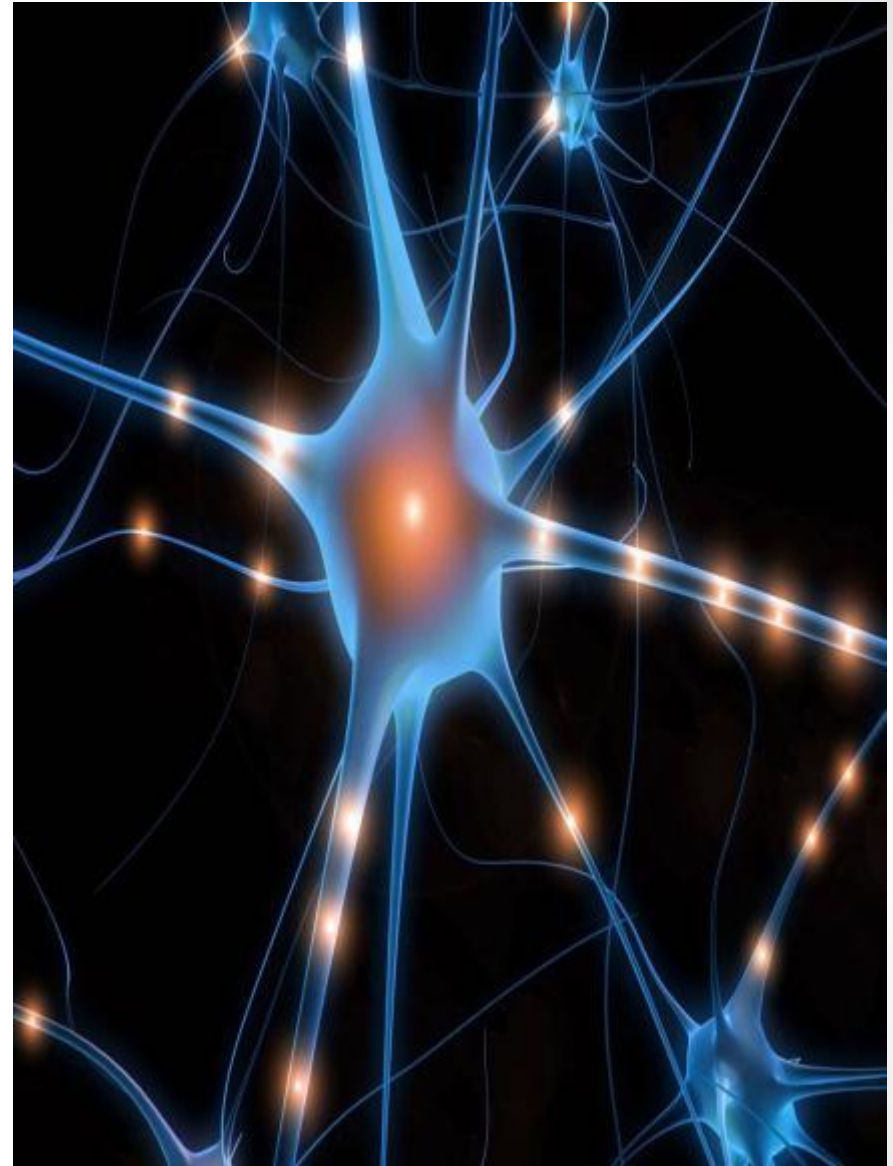


# Our thoughts

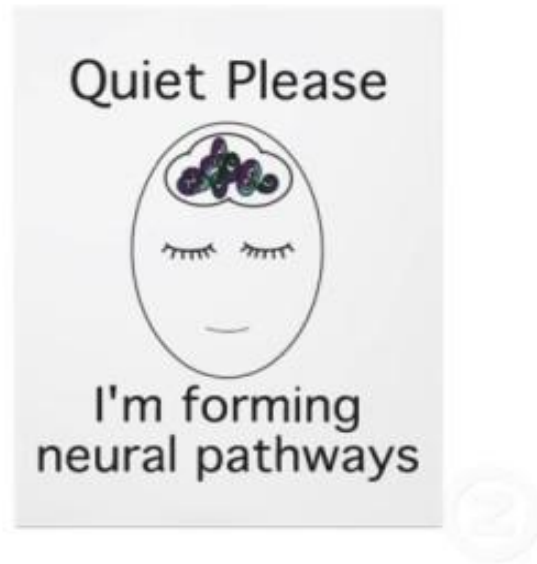


- 🌀 Neuroscience is discovering how we process our thoughts (neural imaging)
- 🌀 Positron emission tomography (PET)
- 🌀 Functional Magnetic resonance imaging (fMRI)

- Creativity and imagination begin with perception
- Imagination is perception in reverse
  - Same neural circuits

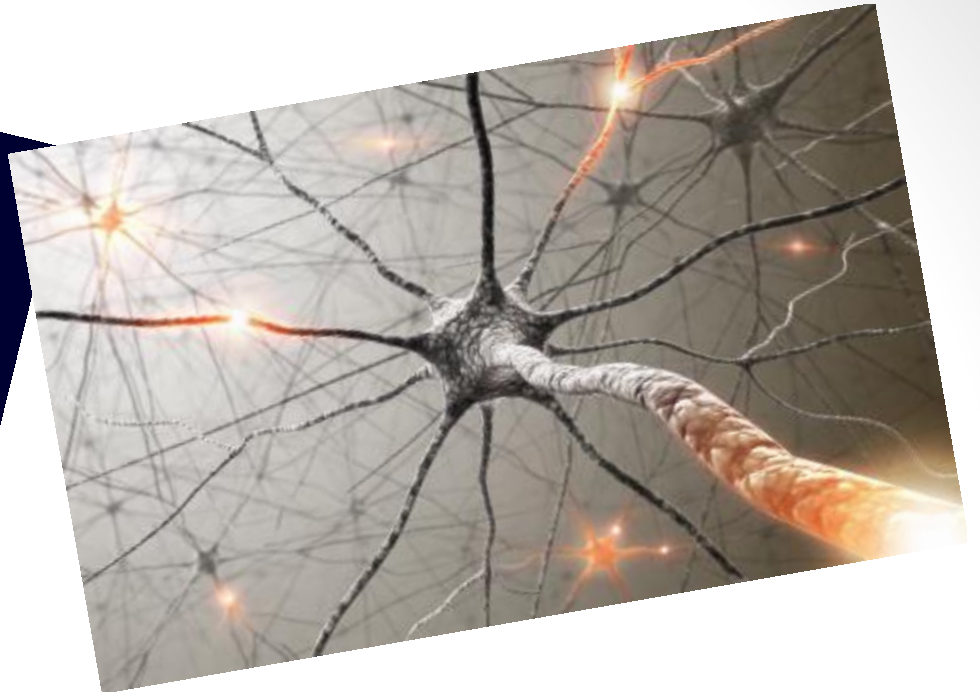
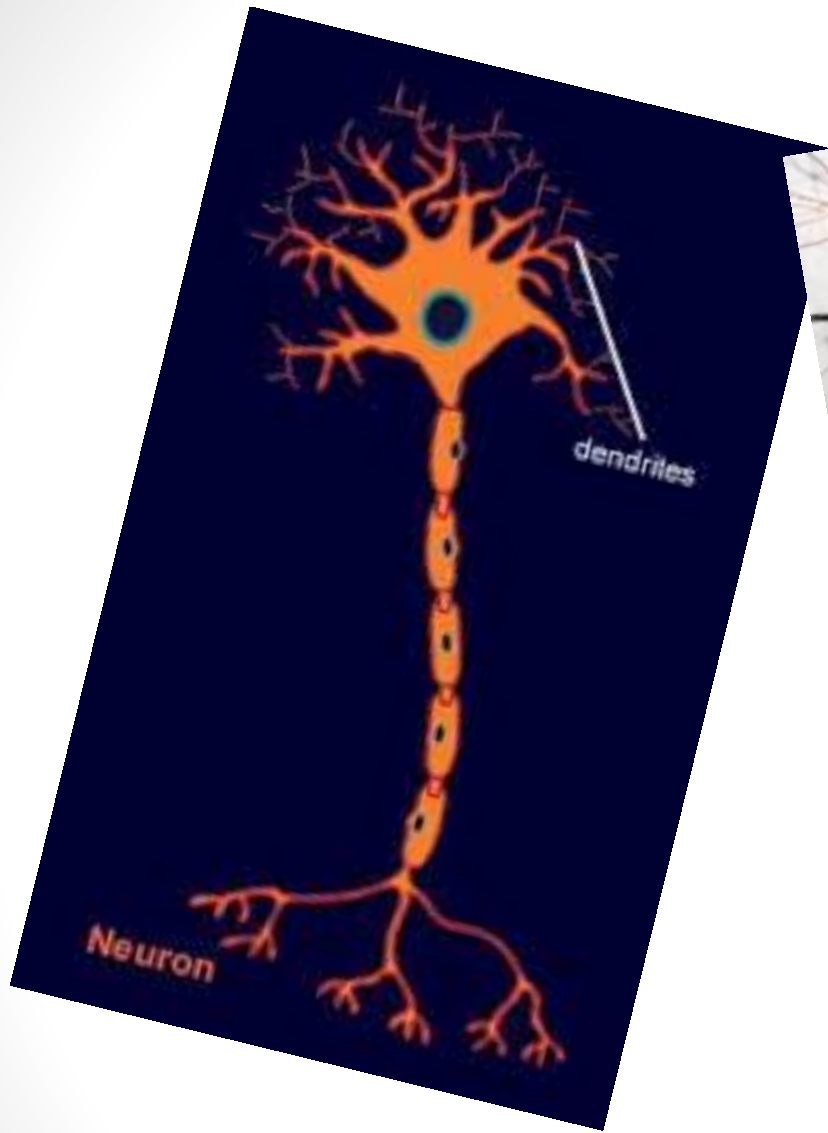






- What we see through our eyes does not alone tell us what we see
- Our brains interpret these signals based on our experience

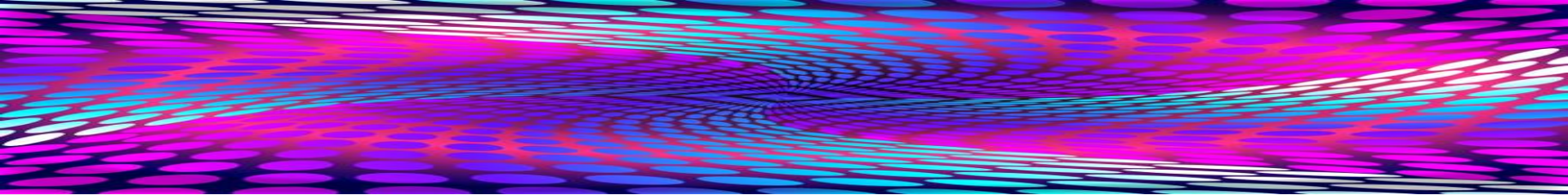
Experience modifies the  
connections between neurons



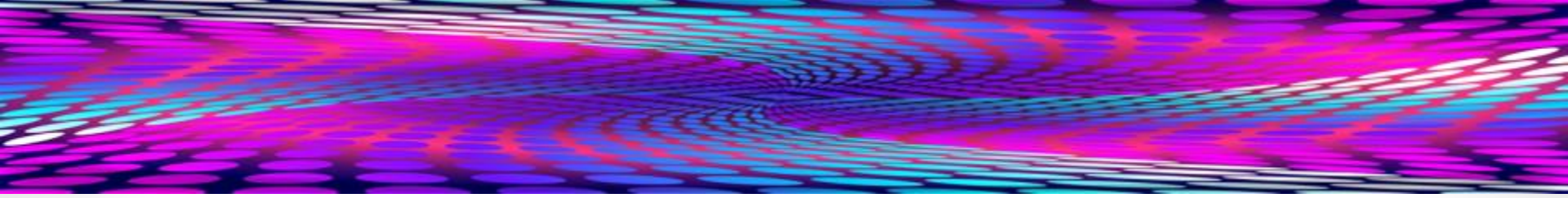
**New experiences**

# ANALOGY

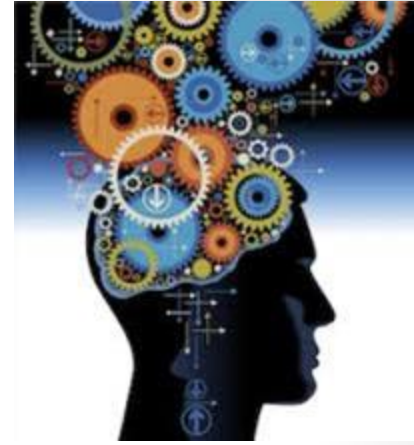




Visualize the sun setting at the beach



Now imagine something that you have  
never actually seen



To think creatively, you must develop new neural pathways and break out of the cycle of experience-dependent categorization

# Our brain's job is to help us to become more efficient at processing information:

New stimuli - host of neural network

by 6<sup>th</sup> time



subset neural activity noted



Neural pathways can be reprogrammed.  
Novel stimulus needed-- new piece of  
information or unfamiliar environment.

radical change = greater insights





to an extent...

- Develop strategies to reduce our instinctive fears and tendencies to think in conventional ways
- Seek out novel experiences and attempt to feel a degree of comfort with them

# Creative Techniques



# Generate new ideas

- Come up with new ideas
- Break out of fixed thinking
- Think beyond current or obvious solutions
- Build upon existing ideas
- Generate new inspiring/surprising ideas

# Divergent → Convergent Phase

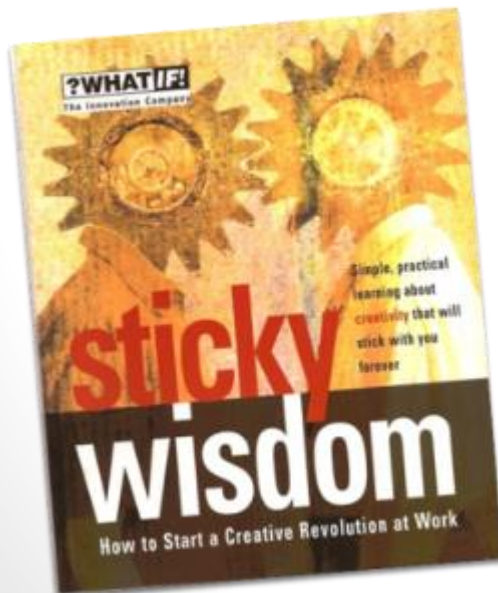
- Define your problem
- Employ divergent techniques
- Cluster or categorize
- Employ convergent techniques

# Define your problem

- Define problem in one concise sentence and be tangible
  - Start with 'how' or 'invent'

# Use divergent techniques

- “ThinkPak” deck and “Thinkertoys” book
- WhatIf methodology from “Sticky Wisdom” book
- [http://creatingminds.org/tools/tools\\_all.htm](http://creatingminds.org/tools/tools_all.htm)



- SCAMPER

- Substitute something
- Combine it with something
- Adapt something to it
- Modify-Magnify it
- Put it to some other use
- Eliminate something
- Revers or Rearrange it







# Cluster and Categorize Ideas

- Clarify and elaborate upon initial ideas



# Converge Ideas

- Voting
- Concept screening
- Six thinking hats

COLOURED HAT	THINK OF	DETAILED DESCRIPTION
	<i>White paper</i>	The white hat is about data and information. It is used to record information that is currently available and to identify further information that may be needed.
	<i>Fire and warmth</i>	The red hat is associated with feelings, intuition, and emotion. The red hat allows people to put forward feelings without justification or prejudice.
	<i>Sunshine</i>	The yellow hat is for a positive view of things. It looks for benefits in a situation. This hat encourages a positive view even in people who are always critical.
	<i>A stern judge</i>	The black hat relates to caution. It is used for critical judgement. Sometimes it is easy to overuse the black hat.
	<i>Vegetation and rich growth</i>	The green hat is for creative thinking and generating new ideas. This is your creative thinking cap.
	<i>The sky and overview</i>	The blue hat is about process control. It is used for thinking about thinking. The blue hat asks for summaries, conclusions and decisions.

Criteria	Score	Comment
New	7	Similar ideas have been used before
Useful	5	Not sure if the sucker will hold well
Feasible	9	Cheap and easy



“If you think creative thinking is a mysterious gift, you can only sit and wait for ideas. But, if creativity is a skill you ought to learn it.” ~Edward de Bono

# References

- Adobe. (2012). *State of Create Study*. Retrieved from:  
[https://www.adobe.com/aboutadobe/pressroom/pdfs/Adobe\\_State\\_of\\_Create\\_Global\\_Benchmark\\_Study.pdf](https://www.adobe.com/aboutadobe/pressroom/pdfs/Adobe_State_of_Create_Global_Benchmark_Study.pdf)
- Land, G., & Jarman, B. (1993). *Breaking Point and Beyond*. San Francisco: HarperBusiness.
- Scott, G., Leritz, L., & Mumford, M. (2004). The Effectiveness of Creativity Training: A Quantitative Review. *Creativity Research Journal*, 16 (4), 361–388.

# Open Discussion

