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Helping Your Students Master Their Creativity

From accidental to intentional
creativity through deliberate practice

XXVI

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Locating Creativity in 2026

Do/Discuss



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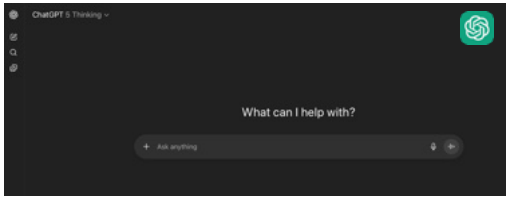
The Creativity Challenge Then & Now



Assignment: In this class you need an idea for a new venture!



In a world of infinite information…
In a world of one-click creativity…

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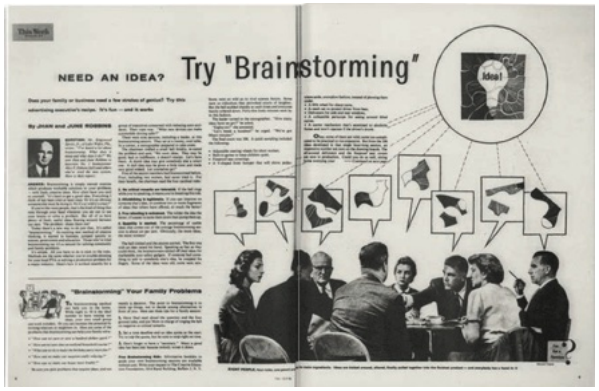
Being "Creative" is a new human paradigm

- The word **creative** as a term to describe a human ability didn't appear until 1875
- Before 1950, there were zero books, research, or essays on creativity
- 1960's brought on the creativity generation



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Creativity as a Practice



1960 - Dupont - Think Up (Brainstorming) 2-3 weeks

Creative thinking occurs when a problem solver invents a novel solution to a problem. - J.P. Guilford (1950)



1999 - IDEO - Human Centered Design 2-3 days

Creativity is the interaction among aptitude, process, and environment by which an individual or group produces a perceptible product that is both novel and useful as defined within a social context. - J.Plucker (2001)



2023 - Student - AI-generated Ideas 2-3 minutes

Creativity is all about the flow of ideas, using your imagination and trying new things. - Penn State Career Center

Creativity is an idea probability game - superior outcomes

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The Creativity Challenge Then & Now



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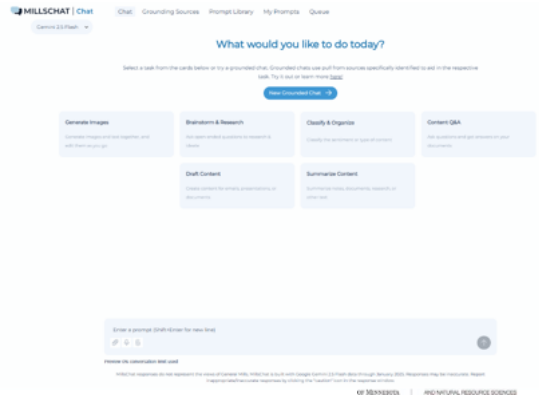

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Entrepreneurship Frameworks

Central to entrepreneurship is the notion that entrepreneurs *create* value.

What entrepreneurs think about:

The process of creating value by bringing together a unique combination of resources to pursue an opportunity.

Morris et al, 2002



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Innovation Theater - Obsession With the New



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Creativity starts with a ?



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Ideas Are Creative Currency

Issues

Context

Connection

Consequence

People produce results!

Issues produce results. **People work the issues.**

People work the issues that produce results.

Issues arise from events



Issues are both problems & opportunities

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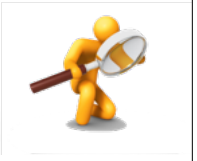
The Creativity Paradigm

Is creativity a domain specific activity
OR
a general thinking activity?



List as many uses as you can think of for a brick



Torrance Test of Creativity, 1966

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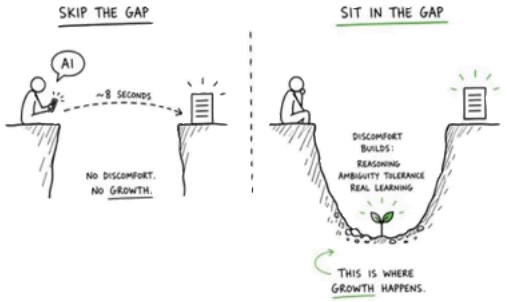
AI Usurps Curiosity & Discovery Thinking



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~~ideation~~

problemation

asking questions

?

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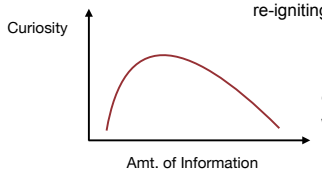
AI Pivots Creativity to _____ Skill Focus

dramatic impact in the learning bandwidth available for many students

Curiosity

re-igniting the essential capacity for curiosity



"the cognitive itch we feel when we perceive a gap between what we know and what we want to know"

Information Gap Theory
(Loewenstein, 1994)

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AI Pivots Creativity to Curiosity Skill Focus

dramatic impact in the learning bandwidth available for many students

Curiosity

- desire to know
- inquisitiveness
- exploration of novelty
- questioning

Creativity

- exploratory endeavor
- generation of original, useful, and valuable ideas, processes, products. (novel + utility)

Intention

Self-Efficacy

re-igniting the essential capacity for curiosity

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Curiosity leads to questions that lead to ideas...

now what?



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Generate Stimulus

#1	#2	#3
What do you see?	What does it do?	How is it like...

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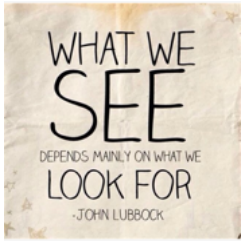
Developing a Curiosity Mindset

perspective

Awareness needs priming



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The 5 Types of Curiosity Impacted by AI

"Creating an adventure as I go is much more appealing than a planned adventure."



Perceptual Curiosity

seek out new sensations or experiences



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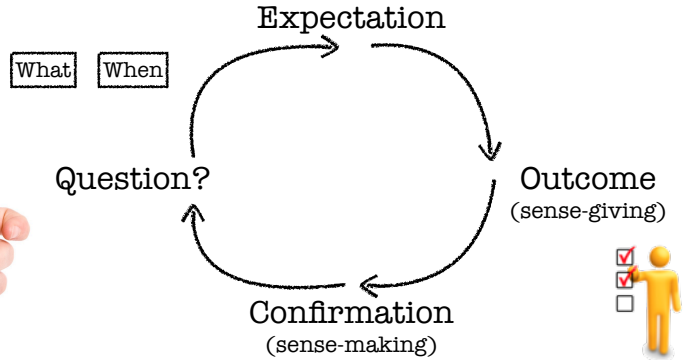
The Curiosity Cycle





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What gets in the way of your curiosity and creative thinking?



Your memory

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Curiosity for Ambiguity

be comfortable and curious in dealing with uncertainty, ambiguous situations, and unresolved problems

What do you see?

"I feel frustrated if I can't figure out the solution to a problem, so I work even harder to solve it."

"The smallest doubt can stop me from seeking out new experiences."



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This isn't a puzzle

Is this glass:

A. half-full
B. half-empty
C. 100% full



This is a data problem

Test Your Data

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What does ChatGPT see?

I want to ask you a quiz question, do you want to play?

Absolutely, I'm ready for your quiz question! What do you have for me?



What do you see in this picture?

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ChatGPT vs. Stamp



In the picture, there's a glass that appears to be half filled with water. Is there a specific question or topic you're thinking about in relation to this image?

Yes. Answer the following question: Is the glass in this picture A.) half full or B.) half empty?

The glass in the picture can be described as both A.) half full and B.) half empty, depending on the perspective one chooses to adopt. This often serves as a classic illustration of optimism (seeing the glass as half full) versus pessimism (seeing the glass as half empty). How would you describe it?

I see it as 100% full. Do you?

That's an interesting perspective! If you consider the glass as being 100% full—half with water and half with air—that's a thoughtful way to look at it, emphasizing that everything occupies space with some substance, even if it's invisible like air. It's a scientific and optimistic viewpoint, seeing full potential in every situation. What led you to see it this way?

I'm a scientist and I have an abundance of human curiosity.

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The Keys To Insight

- selective encoding
- selective combination
- selective comparison



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What do you see?



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What do you see?





Social Curiosity

curiosity about social interactions, relationships, and dynamics among individuals or groups

"When talking to someone, I try to discover interesting details about them."

It depends.

Dependent on context driven by perception.

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What are they thinking? What do you see?



understand and appreciate others' feelings, perspectives, and experiences

"When other people are having a conversation, I like to find out what it's about."



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The defined problem



be motivated to acquire new knowledge and a willingness to invest effort in seeking information and understanding complex concepts

$$2 + 2 = 4$$

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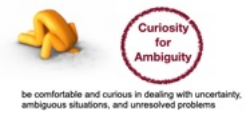
The ill-defined, defined problem



be comfortable and curious in dealing with uncertainty, ambiguous situations, and unresolved problems

When is this true?

$$2 + 2 = 5$$

Opportunity Statement

"What must be true in order to satisfy this equation."

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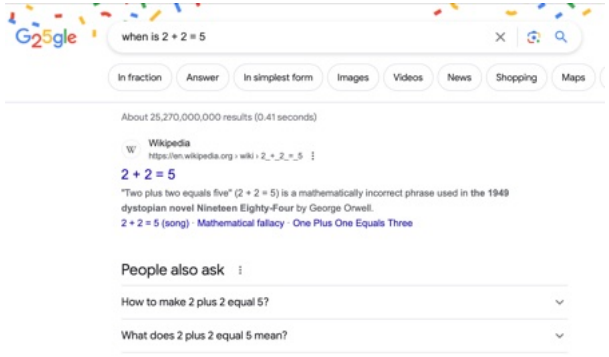
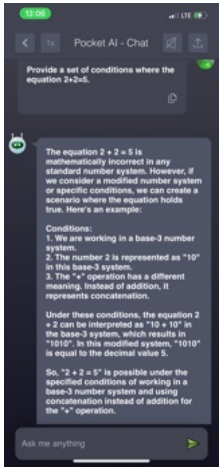
Questions You Can't Google





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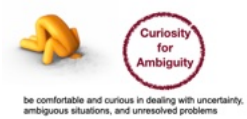
The ill-defined, defined problem



When is this true?

$$2 + 2 = 5$$

Opportunity Statement

"What must be true in order to satisfy this equation."

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The ill-defined, defined problem

When is this true? (gap-related question)

What numbers equal $= 2$?

1.5
1.6
1.7
1.8
1.9 = 2.0 = 2.1
2.2
2.3
2.4

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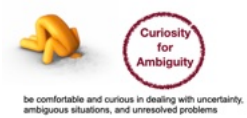
The ill-defined, defined problem



When is this true?

$$2.4 + 2.4 = 5$$

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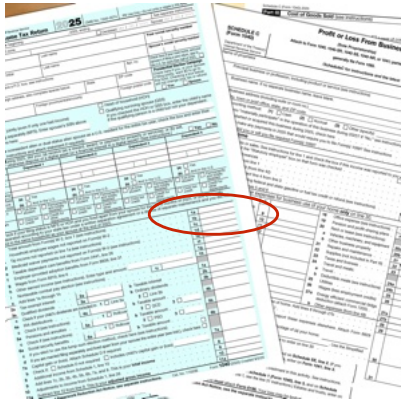
On U.S. tax returns $4.80 = $5.00



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The ill-defined, defined problem

Curiosity for Ambiguity

be comfortable and curious in dealing with uncertainty, ambiguous situations, and unresolved problems

When is this true?

Let's try it!

$$2 + 2 = 3$$

2+2 = 3 ?

2+2 = 4 ?

2+2 = 5 ?

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Prototype the Question

Curiosity for Ambiguity

be comfortable and curious in dealing with uncertainty, ambiguous situations, and unresolved problems

Let's try it!

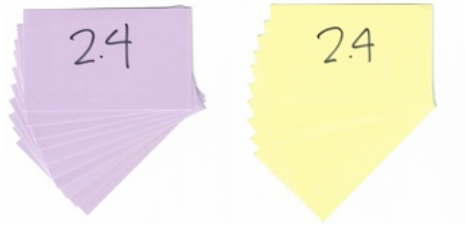
Step 1: Shuffle cards

Step 2: Select at random 1 card of each color

Step 3: Sum the 2 cards - round to the nearest integer

Step 4: Repeat for all 10 pairs - record values

Step 5: Calculate % of values = 3, 4, 5



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The ill-defined, defined problem

Curiosity for Ambiguity

be comfortable and curious in dealing with uncertainty, ambiguous situations, and unresolved problems

When is this true?

Let's try it!

$$2 + 2 = 3$$

2+2 = 3 15%

2+2 = 4 75%

2+2 = 5 10%

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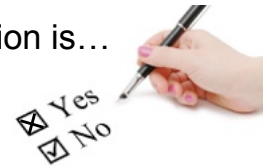
Feeding Curiosity

The answer to any question is…



It depends

Dependent on context driven by perception.

Fueled by curiosity

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Epistemic Curiosity

motivated to acquire new knowledge and invest effort in seeking information



Perceptual Curiosity

seek out new sensations or experiences



Social Curiosity

curiosity about social interactions, relationships, and dynamics among individuals or groups

test your Aha-bility



Empathic Curiosity

understand and appreciate others' feelings, perspectives, and experiences



Curiosity for Ambiguity

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INNOVATION[1] IS THE CREATION OF A VIABLE[2] NEW[3] OFFERING.[4]

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