

# 14 Ideation

Monday, February 27, 2023 1:38 PM

START ZOOM recording

## Today

Ideation techniques

Brainstorm brainstorming

Linear techniques

Intuitive techniques

-or-

International Style, Art Deco, Organic

Anil Karathra | Eduardo Kobra, Street Art

[https://www.canva.com/design/DAFblkvgH8Q/zVai5jTcTg\\_96b6vSoF7XQ/edit?utm\\_content=DAFblkvgH8Q&utm\\_campaign=designshare&utm\\_medium=link2&utm\\_source=sharebutton](https://www.canva.com/design/DAFblkvgH8Q/zVai5jTcTg_96b6vSoF7XQ/edit?utm_content=DAFblkvgH8Q&utm_campaign=designshare&utm_medium=link2&utm_source=sharebutton)

Wednesday

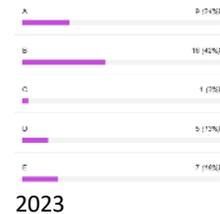
Classroom interview by Kat McConnell. How are things going? In-person strongly requested

Friday: Guest Lecture - Jason McGrath. AesDes alum, industrial designer.

By zoom; lives in Austria. Attendance required

Poll:

- A) I know what I'm making for my main project
- B) I've got some ideas, but still need to narrow it down
- C) Too many ideas right now
- D) Not enough ideas, nothing feels right
- E) Haven't started thinking about it yet.



Do you want to see ideation techniques in class today?

Ideation techniques

Brainstorm brainstorming

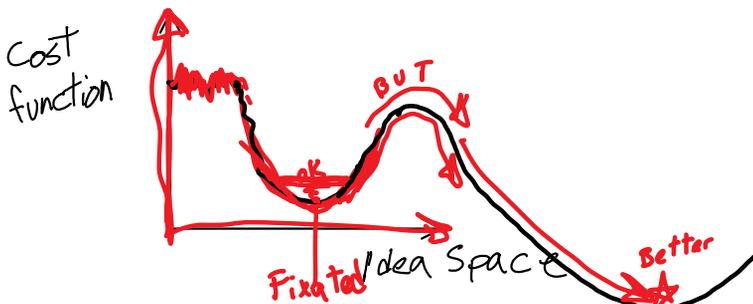
Linear techniques

Intuitive techniques

- A) Yes please!!
- B) Sure. Can't hurt
- C) whatever
- D) No thanks, let's move on.



## Ideation/Brainstorming



Your initial idea may be good, but you may get a better one if you press on,

Your initial idea may be good, but you may get a better one if you press on, and keep generating ideas

#### Benefits of ideation

- Never hurts
- Can lead to new solution
- Can lead to better solution
- Can lead to an awesome solution for some *other* problem
- Even if nothing comes of it, can add meaning to your original solution

## Ideation Techniques

### Brainstorming: What have you been exposed to?

- APD: Pain points of clients
- Cody: Rapid shotgun method. As many as possible, judge later
- Look at example solutions
- Combining requirements to make a single prompt
- Take all ideas good and bad
- Suggestion cards. Eno's Oblique Strategies, IDEO, Instagram ads.
- Outside sources

### Previous years:

- Write everything down as it comes, even if it isn't that good
- No idea is bad, can still provide something useful
- Build on other ideas
- Don't settle on any idea until you have at least 100 to choose from
- Fail early and fail often
- Write out obvious ideas first to clear space for the next
- Let ideas simmer, then take a shower
- The shower is a magical place, take lots of showers
- Running or hiking, being in motion and not thinking helps
- Just before sleep, be ready to get up and write it down
- Start with easy google search
- If you have a basic idea or two, talk to folks for other viewpoints
- Looking at something from as many perspectives as possible, even unrelated ideas
- Reading any book, just sitting and reading
- Empathize
- Come up with multiple solutions
- Walks with music
- Pinterist
- Talk to myself
- Bounce similar words: Cardboard to cardstock ....
- Design heuristics cards
- Do research on existing solutions, try to go beyond
- Go eat, while relaxed
- Near drowning writing
- Dali: fall asleep with a plate, then use the adrenaline rush from crash to get ideas
- Being receptive while falling asleep
- Think to yourself first, then talk to others
- Youtube videos
- Expose yourself to similar solutions
- Create a roadmap: list specifications and goals
- Look through previous work; springboards
- Walk away, give yourself time
- Think of materials, then the object, and vice versa

Consider your audience, then come up with tone words about what they want  
 Come up with user personality profiles, be empathetic  
 Break task up into smaller parts  
 Go do sports with music, to relax the brain  
 Write everything, don't hold back, even if it is not possible/probable. Springboard off others' ideas.  
 Questionstorming. Helps you decide what's important, can guide brainstorming, open you to other considerations. Start with a statement, then generate open questions  
 Sr design: pack of cards with techniques. Heuristic cards  
 Write down 100 ideas. First 15 are good, 50 are meh, after 70 ideas really opened up  
 Sketching can give ideas and insights  
 Keep a list for later. Always have ideas ready

## Design Heuristics

Prompts to help spark alternatives. Good for early in design process.

1 Add levels	20 Change geometry	39 Incorporate environment	58 Scale up or down
2 Add motion	21 Change product lifetime	40 Incorporate user input	59 Separate functions
3 Add natural features	22 Change surface properties	41 Layer	60 Simplify
4 Add to existing product	23 Compartmentalize	42 Make components attachable/detachable	61 Slide
5 Adjust function through movement	24 Contextualize	43 Make multifunctional	62 Stack
6 Adjust functions for specific users	25 Convert 2-D material to 3-D object	44 Make product recyclable	63 Substitute way achieving function
7 Align components around center	26 Convert for second function	45 Merge surfaces	64 Synthesize functions
8 Allow user to assemble	27 Cover or wrap	46 Mimic natural mechanisms	65 Telescope
9 Allow user to customize	28 Create service	47 Mirror or array	66 Twist
10 Allow user to rearrange	29 Create system	48 Nest	67 Unify
11 Allow user to reorient	30 Divide continuous surface	49 Offer optional components	68 Use common base to hold components
12 Animate	31 Elevate or lower	50 Provide sensory feedback	69 Use continuous material
13 Apply existing mechanism in new way	32 Expand or collapse	51 Reconfigure	70 Use different energy source
14 Attach independent functional components	33 Expose interior	52 Redefine joints	71 Use human-generated power
15 Attach product to user	34 Extend surface	53 Reduce material	72 Use multiple components for one function
16 Bend	35 Flatten	54 Repeat	73 Use packaging as functional component
17 Build user community	36 Fold	55 Repurpose packaging	74 Use repurposed or recycled materials
18 Change direction of access	37 Hollow out	56 Roll	75 Utilize inner space
19 Change flexibility	38 Impose hierarchy on functions	57 Rotate	76 Utilize opposite surface
			77 Visually distinguish functions

Daly, Shanna R., Seda Yilmaz, James L. Christian, Colleen M. Seifert, and Richard Gonzalez. "Design Heuristics in Engineering Concept Generation." *Journal of Engineering Education* 101, no. 4 (2012): 601–29. <https://doi.org/10.1002/j.2168-9830.2012.tb01121.x>.

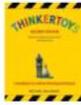
<https://www.youtube.com/watch?v=JPwxlwaUpi0>

Neurological perspective on creativity. Practice, but then let it flow.

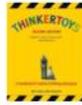
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Content from Thinkertoys by Michael Michalko

## Content from Thinkertoys by Michael Michalko

- Business/entrepreneur oriented
- Lots of stories, some references
- Assortment of techniques
- Very positive-thought oriented

Ideation, particularly new ideas, comes from shifting your perspective, your point of view



A B C Both

Do you see FLIP or FLOP?

flop  
90% 2021

### Linear techniques

Explore idea space systematically

### Intuitive techniques

Your subconscious already has an answer, you just have to ask it nicely

## Linear Techniques

### False Faces

- 1) State your challenge
- 2) List your assumptions
- 3) Challenge your fundamental assumptions
- 4) Reverse each assumption; write down the opposite of each one
- 5) Record differing viewpoints that might prove useful to you
- 6) Ask yourself how to accomplish each reversal. List as many ideas for each as you can.

### Scamper

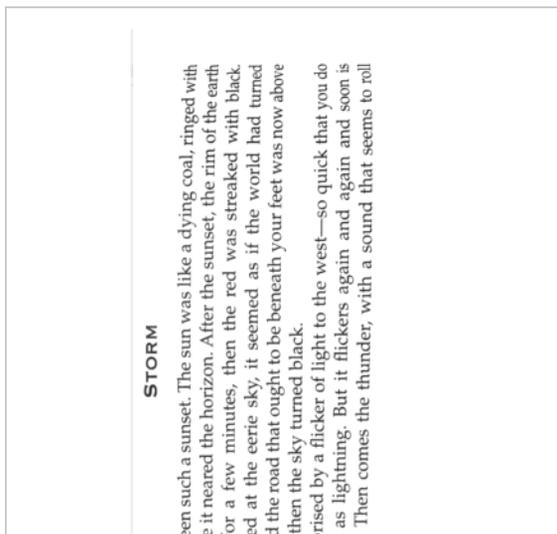
From Alex Osborn, 1940, pioneer of brainstorming techniques. Memonic by Bob Eberle

- S**ubstitute something
- C**ombine it with something else
- A**dapt something to it
- M**odify or **M**agnify it
- P**ut it to some other use
- E**liminate something
- R**everse or **R**earrange it

### Intuitive

#### Not Kansas

Guided visualization. Similar to 'go to your happy place'; imagine experiencing all 5 senses: sight, touch, smell, taste, hearing. Entwine receiving mysterious messages, then look at them and write them down.



You had never seen such a s  
black long before it neared t  
was blood-red for a few n  
When you looked at the e  
upside down and the road tl  
your head. And then the sk  
You are surprised by a f  
not recognize it as lightning  
almost constant. Then com

over you like boulders. The lightning begins to drive into the earth, with streaks as big as poles and terrible sounds.

The rain begins, pelting down in big scattered drops that at first feel good, but the drops grow bigger and soon the rain is falling in sheets, blown this way and that by the fitful wind. In a bright flash of lightning, you see something run in front of you. What is it? Study it and then let it go, but remember what you saw.

The water beats down more heavily, pounding you and running in streams off your hat brim. The rain is now so heavy that you begin to think you might be drowned. A stream of water pours down in front of your nose while another runs down your back. You are so cold and wet that you feel you might never get warm again.

The ground is covered with water and there is nothing to do but splash along. Suddenly, you begin to slide—you have stepped into a hole and you feel water rising up to your hips. You climb out and squish along again.

Soon you get too tired to think and can only hope for morning. But the night goes on and on. Finally, the lightning dies and the hard rain slows to a drizzle. You stop to empty your shoes of water. You drop one. When you stoop down to pick it up, you notice a bottle with a slip of paper in it. You pick up the bottle and put it in your pocket.

A little while later, dawn breaks and the rain stops completely. The sky is cloudless. The first sunlight sparkles on the wet trees and bushes and on the hundreds of scattered puddles. Cold and damp, you bend over a puddle and wash the mud off your clothes. Now that the sun is beginning to warm things up, you find a grassy hill that isn't too wet and ~~start a small fire.~~ *set up a cook stove substitute favorite protein*

Remembering the bottle, you take out the note and read it slowly. What are the images? Open your eyes and write or draw your impressions and images. Write whatever comes to mind.

If the images are cloudy, repeat the exercise daily until you are comfortable with it and the images grow vivid. Begin to imagine that you are going to experience a breakthrough and the images will flow.

... who was trying to find a new business niche experienced

- a) I got nothing
- b) Kinda cool, but nothing specific
- c) A couple of ideas
- d) Bingo! Something useful

2021



2019 2020  
2021 2022

Guided Visualization - Intuitive technique

A + rest nothing

2019 2020

37% 21%

37% 61

47% 14

13% 4

Guided Visualization - Intuitive technique

A I got nothing

B Kinda cool, but nothing specific

C A couple of ideas

D Bingo! Something useful