Zig Zag Book Presentation

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Introduction - Choosing Creativity

“Creativity is 80% learned and acquired”

Hal Gregersen
What is Creativity?

- Creativity is not a “flash of inspiration”, but build-up of practice over time.
- **8 zig-zagging steps to creativity**
  - Ask
  - Learn
  - Look
  - Play
  - Think
  - Fuse
  - Choose
  - Make
- **Zig-zagging**
  - Don’t need to follow steps in order.
- **Common mistakes**
  - Creativity is *not* something done occasionally, but regularly practiced over time in your daily life.
  - There is no “One Great Idea” out there which dawns on you suddenly. Instead, small creative sparks.
Step 1: Ask - How the Right Questions Lead to the Most Novel Answers
Find the Question

- Try ten questions
  - Quickly write down different formulations of the problem
  - Find common themes
- Find the bugs
  - Fix tiny annoyances that may lead to bigger problems
- Reinterpret
  - Change context for what you’ve already created if necessary
- Rise to the occasion
  - Don’t reinvent the wheel. See if a different problem can be solved with your existing solution
2 Search the Space

● Break it down
  ○ Break down into properties, possibilities, combinations

● Draw a fishbone
  ○ Detect all possible causes of the problem by going from obvious to complicated

● Map your idea
  ○ Create a visual representation

● Challenge your assumptions
  ○ List assumptions you have and the reasons why you think they can’t be changed.
Transform the Problem

- Reverse
  - Look at the problem backwards. The smallpox vaccine was discovered from changing “How to cure smallpox?” to “Why milkmaids don’t get smallpox?”

- Go back from the future
  - Visualize the goal, and work backwards to your current situation.

- Pick the worst idea
  - Finding potential good features of them can lead to good ones

- Stretch and squeeze
  - Broaden the scope or narrow the focus of the problem to change the level of abstraction
  - Search the space before you squeeze since you may have invalid assumptions
Step 2: Learn - How to Prepare Your Mind for Constant Creativity
1. Practice Deliberately
   - Challenge Yourself
     - Maximize the benefits of deliberate practice by spending the most time in “flow”
   - Focus on Specific Tasks
     - Think about what is working and what isn’t and how to improve
   - Reflect
     - Creative learners actively reflect on their own learning process

2. Master Your Domain
   - Get Schooled
     - Expand your mind
   - Go for Deeper Understanding
     - Never focus on just the facts
     - Seek out the underlying conceptual structure and deeper meaning
   - Apply What You Know to New Situations
     - Gain “adaptive expertise”
3 Learn Forever

- Seek Knowledge Relentlessly
  - Question the established truths
- Customize Knowledge
  - Use every possible avenue to find knowledge
- Read a Book
- Stay Current
  - Get new information every day
- Recruit a Mentor

4 Balance Specialty with Generality

- Be T-Shaped
  - Make connections between your own expertise and potentially useful concepts in other areas
- Branch Out
- Be a Dilettante
  - Dabble in something you know nothing about
- Pair Up with an Expert
Step 3: Look - How to Be Aware of the Answers All Around You
1 Use Fresh Eyes

- Become More Aware
  - Have an open and curious attitude
- Make Your Own Luck
  - Increase your luck by looking
- Look for New Patterns
  - Look for patterns where you wouldn’t normally look for them
- Cultivate Your Senses
  - See, hear and taste with greater sensitivity and discrimination

- Practice Ethnography
- Look for Serendipity
  - Be alert to valuable accidents
- Spot the Spandrels
- Switch Perspectives
  - Try to perceive things from a different perspective
2 Grab New Sights and Cool Sounds

- Start Tripping
- Relax and Listen
- Play with Children’s Toys
- Shape Your Day
- Remember to Look at Bad Examples
- Flip Through Strange Magazines
- Absorb New Media
- Go Walkabout
- Travel

3 Render It Visible

- Keep an Idea Log
  - Keep all of the ideas that might have potential
- Start an Idea Box
  - Collect a box of interesting things
- Set a Google Alert
- Create a Personal Hall of Fame
  - Look to them when you face a creative challenge
- Appoint a Personal Board of Directors
Step 4: Play - How to Free Your Mind to Imagine Possible Worlds
• Playing is allowing your mind wander. Ex: SMS and ATMs were a result of people having exploring and having fun
• Children, not yet fearing of judgement, allow their minds wander to great creative extents.
• 57% of “extremely successful geniuses” engaged in worldplay (creation of elaborate imaginary worlds) even as adults. It leads to creative success.
• Great ideas usually emerge from the subconscious. Open your conscious mind to be aware, and use techniques to remove logic, criticism, rules, and inhibitions.
1. **Visualize**
   - Imagine freely
   - Children and Macarthur geniuses visualize when they create fantasy worlds/create great works.
   - **Example Exercises**
     - Imagine problems in different contexts (ex: Oncology in terms of furniture)
     - Visualize your working space in great detail. Try to imagine anything you’d like to make better.
     - Travel 5 years to the future and imagine what you’ve succeeded and what the history/world is like in detail.

2. **Relax**
   - You must allow your mind to wander
   - Ideas usually come from the subconscious. It is good to pull back a little on your conscious mind. Do something mindless.
   - **Example Exercises**
     - Don’t finish a task completely. You will come up with new solutions while eating/showering/etc.
     - Still/clear your mind. Ex: meditate
     - There are always sounds around you. Close your eyes and listen to sounds you normally tune out.
3 Find the Right Box

- Popular idea: all you need to do is think outside the box
- Research shows: creativity is enhanced by constraints, but the right constraints. Draw boundaries around the space you play
- Example Exercises:
  - Name as many white vs. white edible things that you can.
  - Master something specific and simple. Ex: open a diner napkin box and figure how it works in 5 min. Your mind blends small things
  - Find non obvious differences between: A E F I U

4 Be a Beginner

- Creative minds always begin fresh
- Nudge yourself into the childlike state of not knowing.
- Example Exercises:
  - Do something for the first time. (Ex: build a card tower)
  - Start a new hobby
  - Write a list of fun things you want to do someday (ex: learn archery). Do one thing a year
Step 5: Think - How to Have Way More Ideas than You’ll Ever Need
• Albert Einstein wrote more than 240 scientific papers. Edison filed more than 1000 patents. Most are not used, but only a few need to be genius.
• Research result: For all creators in all fields, the most creative works are by the most productive scholars.
• Most genius papers from a scientist are in years that the scientist published the most papers.
• The best way to come up with creative ideas is to come up with a lot of ideas.
1 Ideate

- Volume of ideas is important
- If you spend time thinking of a precious idea, and then are too scared tweak it, then it’s hard let more ideas flow.
- Example Exercises:
  - Think of as many uses as possible of a household object. Called divergent thinking. Different types of divergent thinking (ex: originality is how many rare ideas)
  - **Toppling:** saying first word that comes to head. Topple words (start from one word and continue)

2 Transform

- Transform your ideas in surprising ways
- Example Exercises:
  - SCAMPER: Substitute, Combine, Adapt, Magnify/Modify, Put to other uses, Eliminate, Rearrange/Reverse Ex: Ice makes drinks watery?
  - List attributes: Deconstruct a problem (ex: long commute to work) to components (ex: commute, work, long). SCAMPER each
  - Reverse: List assumptions of a problem (ex: Not enough money => my bills stay the same every month). Consider the reverse and if it may be possible.
3 Schedule

- Some of the greatest minds always schedule “idea time”
- Exercises:
  - Schedule an idea time, ideally when your mind is least distracted (ex: morning for some people)
  - Make an idea quota (ex: 10 ideas a day)
  - Many art schools have a challenge: make 200 drawings. Brings creativity as people get fatigued (ex: throwing paint onto paper)
Step 6: Fuse - How to Combine Ideas in Surprising New Ways
1. Force-Fuse
   - Make remote associations
     - Gutenberg Press = Wine Press + Coin Punch
   - Combine concepts
     - A vehicle that is also a fish?
   - Cook on all burners
     - Work on multiple projects at once to get ideas from all of them

2. Make Analogies
   - Use direct analogy
     - Choose a random thing and find its structural similarities to the problem
   - Mimic nature
     - Result of Step 3: Look
   - Use Personal Analogy
     - Imagine you are the product to find problems/solutions
Do a People Mash-Up

- Talk to someone different
  - Age/profession/background/abilities
- Crash a meeting
  - Carefully observe everything
- Work in the intersection
  - Many big companies’ buildings are intentionally inconvenient to force unexpected meetings
Step 7: Choose - How to Pick the Best Ideas and then Make Them Even Better
1. Know What You’re Looking For

- Train your intuition
  - A good solution is “beautiful”
  - Untrained leads to comfort over success

- Organize your choices

- Go for simple, elegant, robust

- Check your ideas
  - Market?
  - Feasibility?
  - Profit?

- Define greatness
2 Host an Idea Competition

- Look for differences
- Rate each idea
  - Use criterion from “Defining Greatness”
- Create affinity diagram
  - Organize ideas by similarity

3 Look Past the Good

- Consider pros and cons
  - Quantitatively rate each item
- Find worst-case scenario
  - Imagine a total disaster in the future and work backwards to find reason
4 Edit, Revise, Improve

- Identify three benefits
- Identify three practical steps
- List potential flaws
- Be the devil’s advocate
- Reformulate, reuse, reperceive
  - Break down the failed idea and analyze components
Step 8: Make - How Getting Your Ideas Out into the World Drives Creativity Forward
1 Draw It

- Draw a Picture
  - Cartoonize it
  - Use index cards for each component
  - Test out configurations

- Collaborate
  - Pass around pictures for modifications

2 See It

- Take Photos
  - Study for connections & subtexts

- Gather Photos
  - Make a Collage
  - Brainstorm connections
3 Build It

- Try quick and dirty
  - Use cheap, easy materials
  - Don’t worry about aesthetics
- Construct abstractions
- Visit a craft store

4 Make It Concrete

- Chart the flow
- Map the journey
- Sing it
  - Use a song everyone knows
- Act it out
5 Reflect on It

- Be a pack rat
  - Keep your pictures/models from the previous steps
- Figure out origins
  - Regularly retrace steps and look for new pathways
- Show and tell
  - Let others see your pictures/models to discuss
Practicing Creativity

- The 8 steps are meant to be practiced daily
  - Focus on each step under different contexts
- Find your own rhythm
  - Balance work time, collaboration, playtime, and relaxation