

State University of New York College at Buffalo - Buffalo State University

## Digital Commons at Buffalo State

---

Creativity and Change Leadership Graduate  
Student Master's Projects

Center for Applied Imagination

---

5-2022

# Practical Skill Building and Application of Sketchnoting and Visual Thinking

Troy Schubert

*College for Creative Studies*, tdschubert@icloud.com

### Advisor

Dr. Susan Keller-Mather

---

### Recommended Citation

Schubert, Troy, "Practical Skill Building and Application of Sketchnoting and Visual Thinking" (2022).  
*Creativity and Change Leadership Graduate Student Master's Projects*. 351.  
<https://digitalcommons.buffalostate.edu/creativeprojects/351>

Follow this and additional works at: <https://digitalcommons.buffalostate.edu/creativeprojects>



Part of the [Social Psychology Commons](#)

Practical Skill Building and Application of Sketchnoting and Visual Thinking

by

Troy D. Schubert

An Abstract of a Project in Creativity and Change Leadership

Submitted in Partial Fulfillment

of the Requirements

for the Degree of

Master of Science

March 2022

Buffalo State

State University of New York

Department of Creativity and Change Leadership

## ABSTRACT OF PROJECT

### Practical Skill Building and Application of Sketchnoting and Visual Thinking

In the ever-quickenning stream of information flowing toward us, how do we connect and engage with that stimulus in meaningful ways? Where does the new information fit in the mosaic of knowledge we already hold? Sketchnoting and visual thinking are methods that work in harmony with the way our brains work, allowing for deeper absorption and recall. The goal of this project was to build foundational skills in sketchnoting and visual thinking, and then find opportunities to begin applying those skills in real-world situations. This document chronicles the journey and key learnings from the effort along with charting next steps.

*Keywords:* sketchnote, sketchnoting, sketch note, visual thinking, visual-spatial map, visual mapping, visualization metaphor, polarity management, doodling, visual recording, graphic recording

Practical Skill Building and Application of Sketchnoting and Visual Thinking

by

Troy D. Schubert

A Project in Creativity and Change Leadership

Submitted in Partial Fulfillment

of the Requirements

for the Degree of

Master of Science

March 2022

Buffalo State

State University of New York

Department of Creativity and Change Leadership

Buffalo State  
State University of New York  
Department of Creativity and Change Leadership

Practical Skill Building and Application of Sketchnoting and Visual Thinking

A Project in Creativity and Change Leadership

By

Troy D. Schubert

Submitted in Partial Fulfillment

of the Requirements

for the Degree of

Master of Science

Dates of Approval:

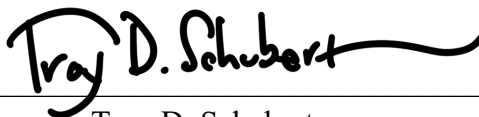
May 12, 2022



---

Dr. Susan Keller-Mathers  
Associate Professor

May 12, 2022



---

Troy D. Schubert  
Student

## **COPYRIGHT NOTICE**

Copyright ©2022 by Troy D. Schubert

All rights reserved. The works of authorship contained in this paper, including but not limited to all text and images, are owned except as otherwise expressly stated, by Troy D. Schubert, and may not be copied, reproduced, transmitted, displayed, distributed, rented, sublicensed, altered, stored for subsequent use, or otherwise used in whole or in part without the prior written consent of Troy D. Schubert, except to the extent that such use constitutes “fair use” under the Copyright Act of 1976 (17 U.S. C. 107), with an attached copy of this page containing the Copyright Notice. The principle of fair use specifies that a teacher may copy 10% of a prose work, up to 1,000 words.

## DEDICATION

I would like to dedicate this project to my parents. They instilled in me a strong work ethic and supported my interests in so many areas! Thank you!

This culminating project fulfills the requirements for my master's program. The following people were and continue to be instrumental and inspirational on my journey:

Edith Harmon – who affirmed my talent and supported me from the start.

Doug Reid – friend, mentor, teacher, warmest spirit on the planet.

Jim Connors – who supported my enthusiasm from the top.

Drew Spieth - a co-conspirator in creativity.

Tim Downing – a brilliant mind and creative rock star.

Matthew Choto – wise beyond his years and saw me in a light I couldn't see myself.

Stephanie Howard – who nurtured the first ember with the words: “I like how you're thinking”.

Gerard Puccio – for helping me cross the finish line.

John Cabra – amazing “finder of gold” in any utterance.

Susan Keller-Mathers – whose excitement and affirmative feedback fueled me.

Jon Pearson – the Sun, and inspirator of other Suns.

Julie Schubert – for supporting me in learning valuable lessons.

Camille & Rachel – for tolerating my leadership in Destination Imagination.

Jo Fuller - who introduced me to Synectics in 2003 and ignited my hunger for creativity.

Wizards of Osbourne – 2013 Creative Studies Cohort... much love to WOO!

Lai Chee Chiu – a generous mentor and teammate on my drawing journey.

## Table of Contents

Section One: Background to the Project .....	1
Purpose and Description of Project .....	1
Rationale for Selection .....	4
Section Two: Pertinent Literature and Resources.....	6
Sketchnoting.....	6
Annotated Bibliography for Sketchnoting .....	6
Visual Facilitation .....	7
Annotated Bibliography for Visual Facilitation .....	7
Visual Thinking.....	7
Annotated Bibliography for Visual Thinking.....	8
Visual Community Connections .....	10
Section Three: Process Plan .....	12
Plan to Achieve My Goals and Outcomes .....	12
Project Timeline and Evaluation.....	13
Section Four: Outcomes .....	15
Metaphorical Thinking: The Archeological Dig.....	15
Preparing for Work: Assembling a Toolbox.....	16
Breaking Ground and Doing the Work.....	18
Humanization: The Salt & Pepper of Sketchnoting.....	20



Recruiting Others on the Dig: Learning Circle .....	22
A Significant and Familiar Boulder: Comparing Myself to Others.....	24
A Visual Map to Move the Boulder: Polarity Management .....	26
Deeper Thinking: Cliché to Metaphor .....	27
Storytime with Dan Roam: The Pop-up Pitch.....	32
Reflections on My Progress.....	34
Meaningful Artifacts: Incremental Key Learnings .....	35
Creative Struggle: Like a Dog Digging for a Bone .....	36
From Pieces to the Synthesized Whole.....	38
Feedback is a Gift .....	42
Collaborative Dialogue using Visuals.....	45
Drawing to Discover: Jon Stuart Pearson’s Four Square Process .....	46
Section Five: Deeper Applications .....	49
Polarity Management – Applying Metaphor to Visual-Spatial Map .....	50
Lighting Creative Flow – A Metaphorical Map to Find Our Gifts .....	54
Shared Learning – Racial Microaggressions .....	58
Section Six: Conclusion .....	62
Tracing My Steps Back.....	62
Meditation Helps .....	63

Hidden Gifts .....	64
Less Thinking, More Doing .....	65
Right Size Challenge .....	65
Connection Through Drawing.....	66
Where Passion is Expressed, Opportunity Emerges.....	67
When I Want to Learn Something New, Connect with the People Who Are Doing It.....	67
What I See Myself Doing Next is.....	67
References .....	69

## List of Figures

Figure 1 <i>Rhode Sketchnote Example</i> .....	2
Figure 2 <i>Visual Relationship Between Domains</i> .....	3
Figure 3 <i>Messenger's Reference List Goldmine</i> .....	8
Figure 4 <i>Costa's List of Uniquely Human Characteristics</i> .....	10
Figure 5 <i>Archeological Dig Metaphor</i> .....	15
Figure 6 <i>Web of Complexity</i> .....	18
Figure 7 <i>First Experience Using ProCreate and the iPad</i> .....	19
Figure 8 <i>First Baby Steps in Posting Digital Media</i> .....	19
Figure 9 <i>Humanization of Visuals and the Difference It Makes</i> .....	20
Figure 10 <i>Capturing Emotion in my Characters</i> .....	21
Figure 11 <i>A Person-house</i> .....	21
Figure 12 <i>Sketchnote Bootcamp Promotional Visual</i> .....	23
Figure 13 <i>What it would be? Mental Chart</i> .....	28
Figure 14 <i>Mental Chart with Visual Examples Included</i> .....	29
Figure 15 <i>Anti-Cliché Vaccine Techniques</i> .....	30
Figure 16 <i>Potential Metaphors for “Goal” or “Objective”</i> .....	31
Figure 17 <i>Dan Roam Pop-Up Pitch Example</i> .....	33
Figure 18 <i>Color Palette Inspiration</i> .....	34
Figure 19 <i>Interesting Brush Font that Took Me Eight Hours to Produce</i> .....	37
Figure 20 <i>New Brush Ideas From Deeper Understanding</i> .....	38
Figure 21 <i>Compelling Visuals Coming Together!</i> .....	40
Figure 22 <i>Flow Channel as Envisioned by Lai Chee Chiu</i> .....	41

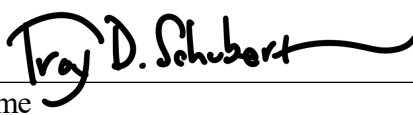
Figure 23 <i>Incremental Learning Coming Together</i> .....	41
Figure 24 <i>Collection of Affirmative Feedback</i> .....	42
Figure 25 <i>Sunni Brown’s Benefits of Sharing Our Work</i> .....	43
Figure 26 <i>Humanized Pie Chart</i> .....	45
Figure 27 <i>Zoom Call with Co-Worker</i> .....	46
Figure 28 <i>Four Square Process: Expressive Drawing of Spontaneous</i> .....	47
Figure 29 <i>Metaphor Visualization – Generated Options</i> .....	51
Figure 30 <i>Polarity Management Visual-Spatial Map – River Fishing Metaphor</i> .....	52
Figure 31 <i>Polarity Management – Results of Self-Facilitation</i> .....	53
Figure 32 <i>Visual-Spatial Map – Version One</i> .....	54
Figure 33 <i>Sketchnotes of Expanding and Unfolding</i> .....	55
Figure 34 <i>Visual-Spatial Map – Version Two</i> .....	56
Figure 35 <i>Results of Diverging on Potential Metaphors</i> .....	57
Figure 36 <i>Building Awareness of Racial Microaggressions – Sketchnote Learning Path</i> .....	59
Figure 37 <i>My Learning Map: Progression to Deeper Applications</i> .....	62
Figure 38 <i>My Friend Going for a Job Interview</i> .....	66

**List of Tables**

Table 1 <i>Project Framework Based on Rhodes and Amabile Dimensions</i> .....	13
Table 2 <i>Deliverables for the Project</i> .....	14

**Permission to place this Project in the Digital Commons online**

I hereby grant permission to the Center of Applied Imagination at Buffalo State college to place a digital copy of this master's project: *Practical Skill Building and Application of Sketchnoting and Visual Thinking* as an online resource.

  
Name

May 12, 2022  
Date

## SECTION ONE: BACKGROUND TO THE PROJECT

### Purpose and Description of Project

I watched a video on YouTube about cryptocurrency. When I was done, I felt a tingling satisfaction emerge. I finally understood this complex topic! The next day, I tried to tell my friend about it, but I couldn't find the words. In fact, I struggled to recall much beyond a few words like "blockchain" and... well, I knew it had to do with computers and a network. For the most part, the knowledge was gone.

Oakley and Sejnowski (n.d.) have coined this phenomenon the "illusions of competence" and reveal false assumptions we make about our comprehension and understanding on a topic when we have superficial contact with information, concepts, and conclusions.

The nature of a significant struggle I face is: How do I engage with the dizzying flow of stimulus coming at me in the fast-paced, information-flooded world I navigate in today? How do I put this stimulus in context and make meaning of it for myself? Working in a global economy, how do I communicate across cultures and languages to share with others and build common understanding?

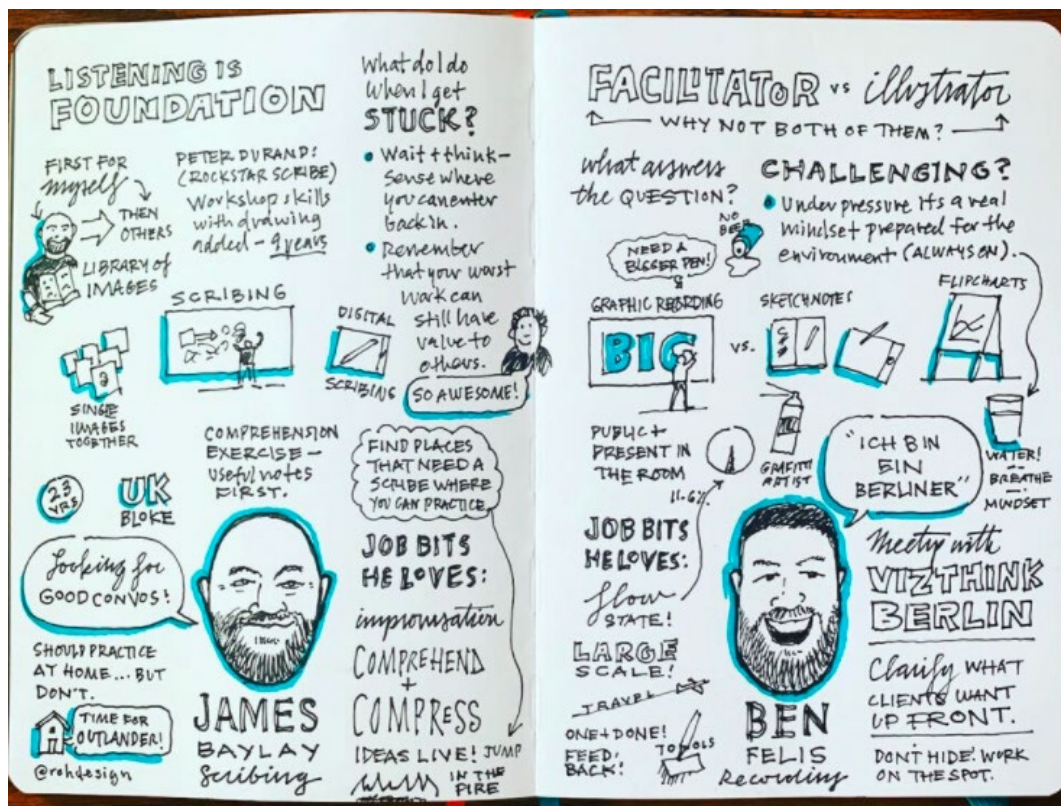
To learn and engage deeply, I need ways to connect more intimately to the stimulus. It's not only slowing down and expanding the duration of my exposure. That seems obvious. But I also need to pay attention to the quality and nature of how I synthesize and integrate the information. However, the end result I seek goes further than simply accumulating and retaining information. Deep comprehension and understanding are foundational building blocks to higher levels of functioning like collaboration and creativity.

In the last decade, a technique aimed at the challenge I've outlined above has been growing in popularity and application. Brown (2011, 2015) called the technique "doodling" in

her TED Talk. Brand (2017) called the technique “visual thinking”. Rohde (2015) coined the term “sketchnote”: a rich visual collection of information created from a mix of handwriting, drawings, hand-lettering, shapes, and visual elements like arrows, boxes, and lines. An example of the output from Rohde’s technique is shown in Figure 1.

**Figure 1**

*Rhode Sketchnote Example*



*Note.* This figure of sketchnoting is from Rohde’s (2022) website. Used with permission.

Regardless of what we call it, the benefits of these techniques include richer and more colorful recall of concepts and information, deeper understanding of relationships, and facilitation of connections within the subject matter. Performing these techniques touches



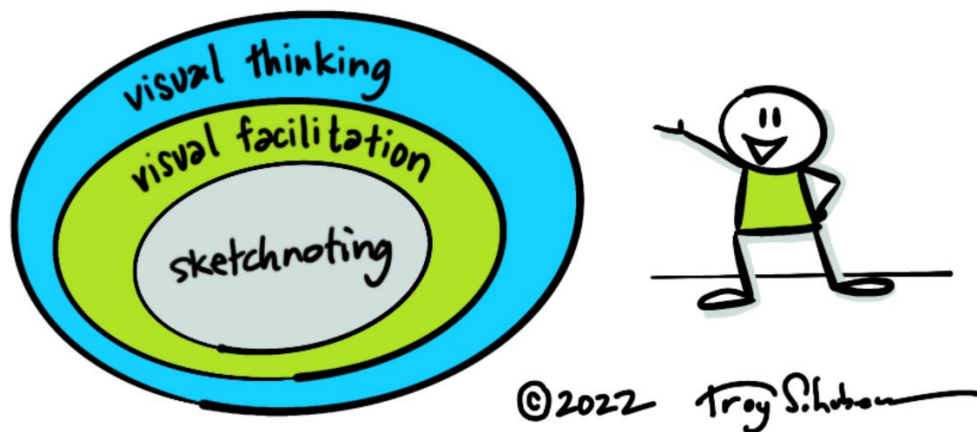
multiple learning styles: visual, kinesthetic, and reading and writing. In addition, these techniques can illicit emotion and tap into the affective domain of learning.

Owing to the validation of my claims, Brown's (2011) TED Talk referenced two studies that serve as rationale to support the value of doodling. Andrade (2010) showed that doodling improved memory retention by 29%. Mueller and Oppenheimer (2014) found that students who took notes on laptops performed worse on conceptual questions than students who took notes longhand; further, that processing information and reframing it in their own words was key to deeper learning.

The purpose of my project is to develop skills in sketchnoting, visual facilitation, and visual thinking. In simplistic form, these domains are related as follows: visual thinking is inclusive of visual facilitation is inclusive of sketchnoting (see Figure 2).

## Figure 2

*Visual Relationship Between Domains*



I have had the opportunity to practice and share my nascent skills in sketchnoting with coworkers and classmates, and I consistently get encouraging feedback. For example, on a recent mid-year review a coworker stated that “[Troy is]... capable of casually throwing together

conceptual drawings that are clear and enjoyable”. In a discussion on Slack, a colleague posted: “Also- did you draw this image @Troy.Schubert?! It’s beautiful 😊”. This affirming support from my extrinsic environment kindles motivation. On an intrinsic level, I notice that I experience deeper levels of engagement, energy, and creative flow when I practice and apply the techniques.

Personal goals for the project include:

- To grow my visual vocabulary through practice and application
- To build fluency in using a digital drawing medium to create
- To assemble a foundation of science-based support for the value of these skills
- To explore visual frameworks designed to facilitate a creative process
- To develop, test, and refine a new visual thinking framework
- Explore new metaphors for visual frameworks
- To cultivate joy and fun while learning a new skill

### **Rationale for Selection**

Motivation for the selection and focus of my project arises on several levels from personal to professional.

First, developing a capability in sketchnoting is relevant to scholarship of creativity. The process of sketchnoting draws on several of the creativity skills that Torrance (1979) identified, including:

- Highlight the Essence
- Elaborate – But Not Excessively
- Keep Open

- Be Aware of Emotions
- Put Your Ideas in Context
- Combine and Synthesize
- Visualize It – Richly and Colorfully
- Let Humor Flow and Use it
- Get Glimpses of the Future

Second, drawing and capturing ideas visually brings me joy. Through much of the creativity studies curriculum, I've had exponential learning in how to work with others. I've had satisfying results facilitating groups and developing others' creativity. My initial reaction was to judge this project as not significant enough and even selfish. However, I'm taking a stand that the pursuit of my inner joy might be a gift to others. This draws on wisdom from Howard Thurman: "Don't ask yourself what the world needs. Ask yourself what makes you come alive and then go do that. Because what the world needs is people who have come alive" (Bailie, 1996, p. xv).

Finally, the techniques and skills involved in sketchnoting and visual thinking are relevant, useful, and valued. I briefly mentioned the work of Brown (2011), Brand (2017), and Rohde (2015), each actively working to further the discipline through workshops, podcasts, and book writing. In addition, a member of this master's project class shared that her employer, a multinational software company, has initiated widespread training in "scribing". She stated that this technique is synonymous with sketchnoting. Further, I consistently get feedback from my environment that I have talent in this area. Together, these observations affirm that this is a worthwhile pursuit.

## SECTION TWO: PERTINENT LITERATURE AND RESOURCES

In seeking literature and resources to support the project, three general areas will be explored: sketchnoting, visual facilitation, and visual thinking.

### Sketchnoting

The immediately familiar sources linked to sketchnoting include the work by Brown (2011, 2015), Rhode (2015), Walker (2012), and Messenger (2016). With the surging popularity of this visual notetaking method, there are several channels and communities to connect to including: Visual Academy on Slack, Gamestorming on Slack, Sketchnote Army on Slack, Dan Roam on YouTube, and Scotviz on Vimeo.

### Annotated Bibliography for Sketchnoting

Brown, S. (2015). *The doodle revolution: Unlock the power to think differently*. Portfolio / Penguin.

Brown starts with a basic drawing alphabet and builds from there. There are guidelines for color and layout to drawing figures and managing our inner critic. Includes exercises to build the sketching muscle.

Rohde, M. (2015). *The sketchnote workbook*. Peachpit Press.

Rohde's approach and style is simple and approachable. He starts with the basics and offers some simple graphical layouts that can fit most topics.

Walker, M. (2012). *Visual thinking: Sketching my future as a visual practitioner*.

<https://digitalcommons.buffalostate.edu/creativeprojects/156/>

Walker is a former student and completed a masters project in the same domain. She started working professionally shortly after completing her project and has a full-time business doing this work. Her website is <http://onesquigglyline.com/>.

Messenger, H. (2016). Drawing out ideas: Visual journaling as a knowledge creating medium during doctoral research. *Creative Approaches to Research*, 9(1).

Messengers work and reference list bridge into visual thinking, but there are solid concepts and principles to explore and adopt from her academically-slanted research paper tracing her own journey in visual journaling.

### **Visual Facilitation**

I will explore visual methods for representing the steps, stages, and tools of the creative process. Also, resources on processing questions for experiential learning will be explored.

#### **Annotated Bibliography for Visual Facilitation**

Miller, B., Vehar, J. R., & Firestien, R. L. (2001). *Creativity unbound: An introduction to creative process* (5th ed.). Innovation Resources, Inc.

This is the text used in the introductory course CRS 559 Principles in Creative Problem Solving at Buffalo State College.

Gray, D., Brown, S., & Macanuso, J. (2010). *Gamestorming: a playbook for innovators, rulebreakers, and changemakers*. O'Reilly.

This book presents processes and exercises as “games”. It is rich with graphics and doodles designed to elicit a particular type of thinking or function. I suspect that many of these games can be mapped onto the Creative Problem Solving Process.

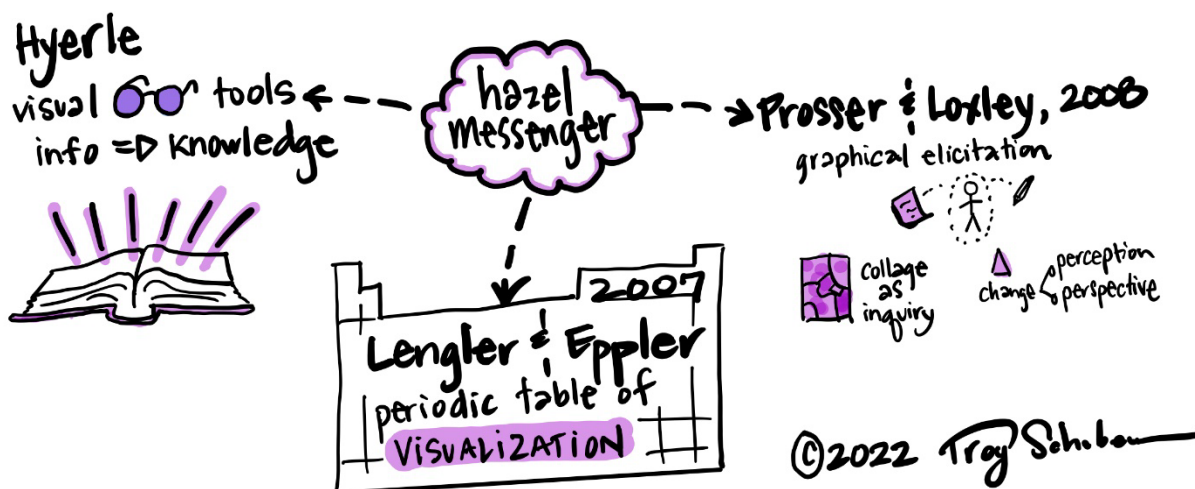
Gaw, B. A. (1979). Processing questions: An aid to completing the learning cycle. In Jones & Pfeiffer (Eds.), *The 1979 annual handbook for group facilitators*. University Associates.

### **Visual Thinking**

Dr. Hazel Messenger is an Associate Professor at London Metropolitan University, giving context to why her publication in 2016 is rigorously researched with a generous list of references to explore. Key references are listed in Figure 3.

**Figure 3**

*Messenger's Reference List Goldmine*



Many of these sources ladder up to the broader domain of visual thinking. The priority list includes Prosser & Loxley (2008), Lengler & Eppler (2007), and Hyerle et al. (2009).

### **Annotated Bibliography for Visual Thinking**

Prosser, J., & Loxley, A. (2008). Introducing visual methods. ESRC National Centre for Research Methods Review Paper, NCRM/010(February), 1–60.

The authors create a distinction between different types of visual stimuli from photographs to icons to drawing and sketches. The type of stimuli has the potential to elicit a particular response. In addition, they argue that visuals are “beneficial where literacy and cross-cultural language communication is problematic or when there are major differences in knowledge and

expertise, for example between expert and non-expert.” This speaks to the value, utility, and universality of visual stimulus in nurturing connection and common ground.

Lengler, R., & Eppler, M. (2007). Towards a periodic table of visualization methods for management. [https://www.visual-literacy.org/periodic\\_table/periodic\\_table.pdf](https://www.visual-literacy.org/periodic_table/periodic_table.pdf)

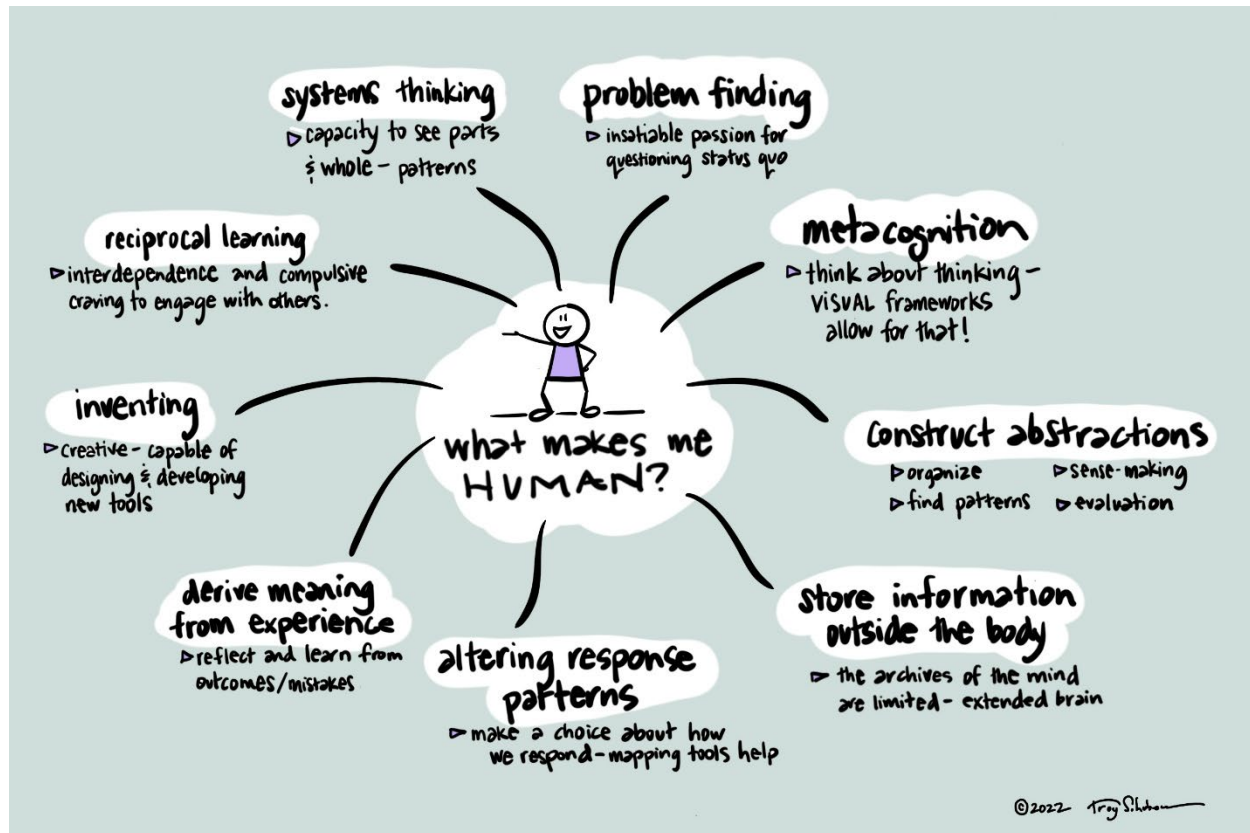
Through the lens of the periodic table of elements as metaphor, the authors build out a taxonomy of visualization tools and their uses.

Hyerle, D., Costa, A. L., & Marzano, R. J. (2009). Visual tools for transforming information into knowledge (2nd ed.). Corwin Press.

This is a comprehensive resource that contains fascinating details on brain science and what happens when we look at visuals. The prologue is even amazing: Arthur L. Costa articulates nine uniquely human characteristics that set us apart as a species. I created a sketchnote in Figure 4.

Figure 4

*Costa's List of Uniquely Human Characteristics*



### Visual Community Connections

I will tap the wisdom and guidance of people who have skill, experience, and wisdom in the discipline of sketchnoting, visual facilitation, and visual thinking. The list of options will expand, but includes:

- Tuesday “Sketch Club” crew – Lai Chee Chiu facilitator, Elise, Dan, Miriam, Marie
- LernOS Learning Circle – a learning circle I organized to facilitate sharing and feedback in domain-specific skills: Lai Chee Chiu, Lauren, Maria, Edmund
- Dave Mastronardi – author at Gamestorming



- Melinda Walker – completed a Creative Studies Master’s Project in 2012 with similar topic.
- Jon Stuart Pearson – Artist / Writer / Speaker / Creativity Guru
- Wade Forbes - A Thinker Who Draws, Illustrator, Sketchnote Artist

## **SECTION THREE: PROCESS PLAN**

### **Plan to Achieve My Goals and Outcomes**

To initiate the project, a vision statement was created: “It would be great if I am developing and applying my visual thinking talent and skills.” In this future state, I imagine I’ve developed fluency in sketchnoting. The digital tools have become second nature. I’m incorporating the techniques into my workflow on a continuous basis, and I set aside time for ongoing deliberate practice.

As I consider this future state, some key challenges that emerge include:

1. How might I stay focused, organized, and energized?
2. How might I track my progress in a way that is visual, engaging, and wholistic?
3. How to keep it simple?
4. what might be an appropriate framework for developing the sketchnoting skills?
5. What might be an appropriate framework for developing the creative skills to support the sketchnoting techniques?

Drawing on the work of Amabile (1983), these challenges can be matched with the componential framework of task-motivation (challenges 1 – 3), domain-relevant skills (challenge 4), and creativity-relevant skills (challenge 5).

For task motivation, I will take inspiration from Amabile and Kramer (2004). They found that joy, engagement, and creativity were closely tied to small wins and progress toward meaningful goals. I will measure and track my progress in a visual way that captures the essence these research findings.

For domain-relevant skills, I learned some of the basics of sketchnoting through a Gamestorming Expedition (Mastronardi, n.d.), YouTube video by Rohde (n.d.), and a sketch

club led by Lai Chee Chiu. The foundational steps include learning a visual alphabet, developing a visual vocabulary, and using frameworks to organize and give context to components of the sketchnotes. I will use this simple curriculum to deepen my practice and explore other potential curriculums or learning paths.

For creativity-relevant skills, I will leverage the work by Torrance. (1979) The book defined creativity-relevant skills that correlate well with the technique of sketchnoting. I will deep dive on one creativity skill each week and follow the exercises and practices recommended at the end of the chapters.

### Project Timeline and Evaluation

To further organize the plan, the efforts are framed in Rhodes' (1961) dimensions of people, product, process, and press. Project framework and deliverables are reflected in Table 1 and 2. Evaluation of the creative output is built into mentor meetings and publishing of work each week.

**Table 1**

*Project Framework Based on Rhodes and Amabile Dimensions*

		Amabile (1983)		
		Task Motivation	Domain-relevant Skills	Creativity-relevant Skills
Rhodes (1961)	People	Self, Classmates, Mentors	Lai Chee Chiu, Rohde, etc	Classmates, Susan Keller-Mathers
	Product	Visual Dashboard	Publish work weekly	Journal
	Process	Develop and maintain Dashboard	Follow sketchnote curriculum	Exercises in Torrance (1979)
	Press	Affirmations & Healthy Self-Talk	Capture feedback from my environment	Capture feedback from my environment

**Table 2***Deliverables for the Project*

Activity Type	Activity	Time (hr)	1/31	2/7	2/14	2/21	2/28	3/7	3/14	3/21	3/28	4/4	4/11	4/18	4/25	5/2	5/9	5/16	5/23
			Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16	Week 17
Class Deliver.	Concept Paper Due - Feb 14	12			x														
Class Deliver.	Project Approval - Feb 21	2				x													
Class Deliver.	Sections 1-3 Due - Mar 21	12								x									
Class Deliver.	Sections 4-6 Due - Apr 18	20												x					
Class Deliver.	Project Due - May 2	20														x			
Class Deliver.	Submit to Digital Commons - May 9	1															x		
Class Deliver.	Class Presentation - May 19	3																x	
Task Motiv	Develop Dashboard	2				x													
Task Motiv	Maintain Dashboard	4				x	x	x	x	x	x	x	x	x	x				
Task Motiv	Affirmations / Health Self-Talk	4				x	x	x	x	x	x	x	x	x	x				
Domain Skill	Mentor Meetings - Evaluation	8				x	x	x	x	x	x	x	x	x	x				
Domain Skill	Create & Publish Weekly	50				x	x	x	x	x	x	x	x	x	x				
Creat Skills	Mentor Meetings	4				x	x	x	x	x	x	x	x	x	x				
Creat Skills	Read Torrance (1979)	20				x	x	x	x	x	x	x	x	x	x				
Creat Skills	Journal	20				x	x	x	x	x	x	x	x	x	x				
Creat Skills	Capture feedback from environment	4				x	x	x	x	x	x	x	x	x	x				

## SECTION FOUR: OUTCOMES

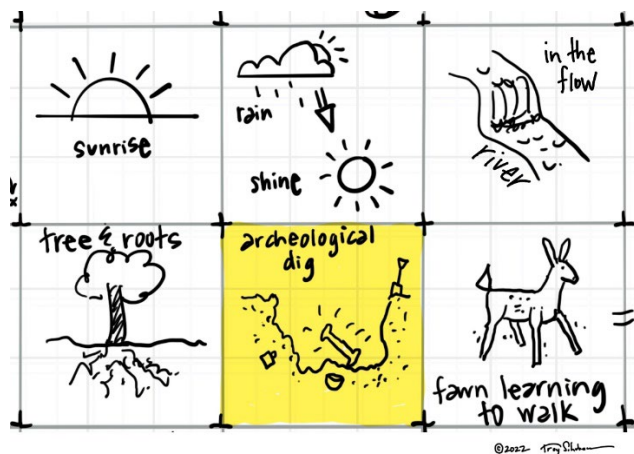
### Metaphorical Thinking: The Archeological Dig

Outcomes for the project were viewed through the metaphor of an archeological dig (see Figure 5). While I don't have direct experience excavating an archeological site, I do have experience digging holes and even made underground forts when I was growing up. I understand the labor involved, the monotony that can descend on the person with the shovel, the difficulty when a large rock is encountered, and the satisfaction of reaching a milestone or end goal.

When I selected this project, I expressed initial uncertainty for the value and significance of developing skills in sketchnoting and visual thinking. Was the topic significant enough to be a culminating, grand finale experience for my graduate program? This element of uncertainty further aligns with the metaphor of the archeological dig where the location, value, and condition of buried artifacts is ambiguous and unknown. There exists an element of risk, discovery, learning, and curiosity.

**Figure 5**

*Archeological Dig Metaphor*



### **Preparing for Work: Assembling a Toolbox**

I made an early decision to use mostly digital tools. After minimal research, I invested in the following array of tools and accessories:

1. Apple iPad Pro (12.9-inch) (5<sup>th</sup> generation) – while I had used an iPad before, there was a learning curve in managing files across four devices and several software platforms.
2. Apple Pencil - works like pencil, but can invoke other commands by double-tapping.
3. ProCreate Software – creates raster-based graphics files. Details will lose fidelity if artwork is scaled. A popular vector-based option is Concepts.
4. Paperlike Matte Screen protector – intended to create the friction and feel of writing on paper, but it doesn't work well. The Apple Pencil slips too easily on the surface, resulting in jittery linework. I was told to just keep working with it and I found that my motor skills acclimated to some degree after several weeks. There are high friction tips that attach to the end of the Apple Pencil, but I did not explore how well these worked.
5. ZUGU Case – to protect the iPad and store the Apple Pencil.
6. Apple Magic Keyboard – occasionally needed to type to rename layers or a custom brush and preferred this to using the on-screen keyboard.
7. Bachmore Bleedproof Marker Paper Pad - 9"X12" – For those times when I felt more comfortable with analog tools. Marker paper absorbs minimal ink, making expensive markers last longer.
8. Other accessories – markers and pens for drawing. I used black Pentel marker pens and Copic markers for color.

In addition, I used several software platforms for collating my work and collaborating with others:

1. Zoom – video conferencing software that gained significant popularity during the COVID-19 pandemic.
2. Slack – on-line collaboration platform for connecting with content-specific communities of people.
3. <https://www.worldtimebuddy.com/> - on-line tool to help quickly visualize global time zones to coordinate meeting schedules.
4. Miro – on-line whiteboard collaboration tool for uploading work, providing feedback, and facilitating live discussion.
5. LinkedIn – connected with graphic recorders and facilitators who are promoting themselves and sharing high-level content.
6. Instagram – less formal or professional than LinkedIn. I did post some work to Instagram and began to follow several artists.

I made no accommodation in my plan for pulling these tools together. It took time and each one presented its own learning curve. I've implied that these tools were assembled at the start of the project, but many emerged organically as the need or opportunity arose.

I became aware of the web of complexity one afternoon as I sat at my desk surrounded by electronics and screens, trying to make a decision which device would be the easiest for sending a quick message on Slack. To better visualize this web, I mapped out a majority of the nodes of interaction. The visual in Figure 6 helped me understand why I was experiencing friction and administrative overhead.

Figure 6

*Web of Complexity*



### Breaking Ground and Doing the Work

I started sketching with the iPad and had my first humbling experience. I had drawn this little guy in Figure 7 in the ProCreate app on my iPad, but I had no idea how to get him out and post him on Miro to share with others. He was imprisoned and outwardly upset about it. It was late at night and I decided to sleep on it, knowing that I would overcome this hurdle but also laughing at how much I had to learn.



**Figure 7**

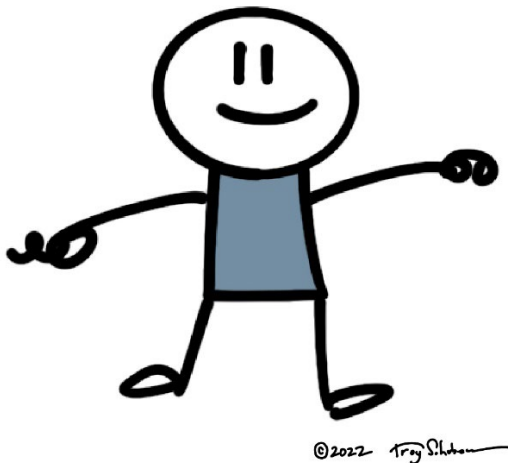
*First Experience Using ProCreate and the iPad*



The following day, I searched for the information I needed and was able to break him free. From the expression on his face in Figure 8, you might notice that he was suddenly happier.

**Figure 8**

*First Baby Steps in Posting Digital Media*

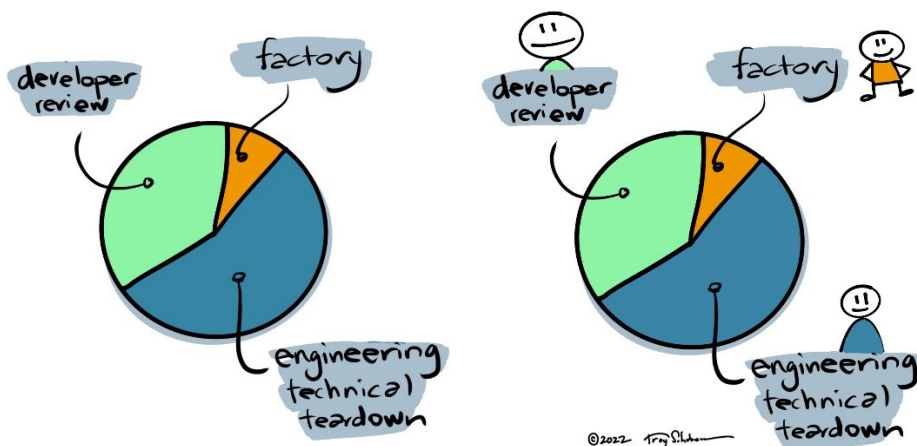


## Humanization: The Salt & Pepper of Sketchnoting

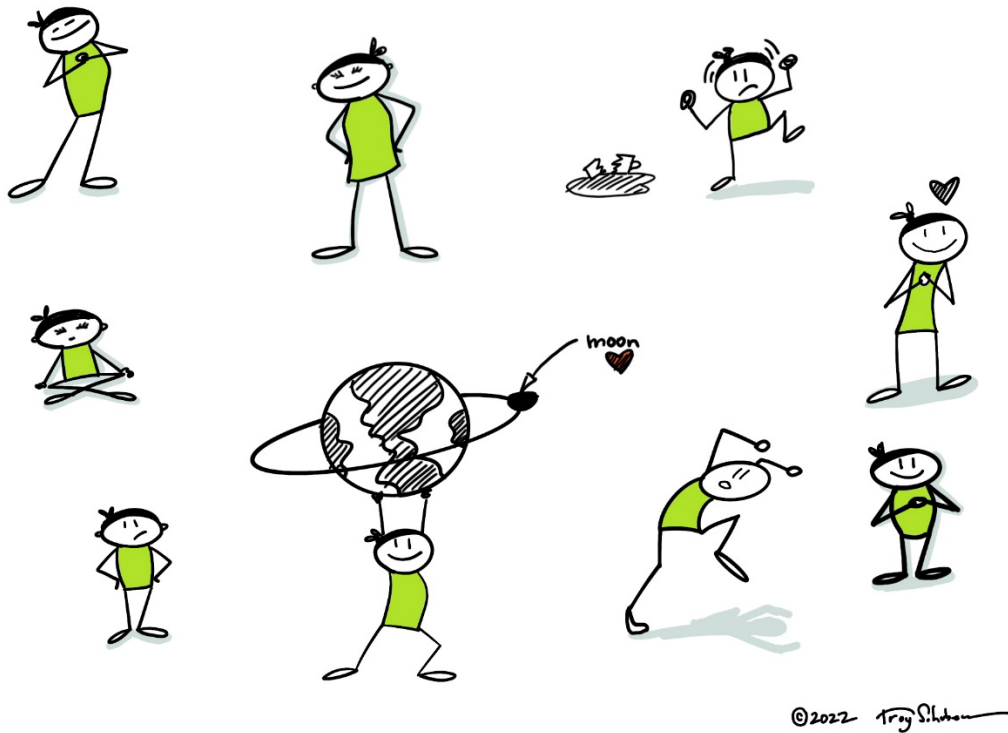
I noticed a concept early in development that I'll call humanization. Through my eyes, drawings with characters or human-like features carried a different and livelier energy. An example is shown in Figure 9. In my evaluation, the drawing with the human characters has more energy and elicits deeper engagement.

### Figure 9

*Humanization of Visuals and the Difference It Makes*



As I drew characters, I noticed that subtle changes in the placement of facial features translated to unique expressions and emotions. The shapes and postures of the bodies also played a role. As shown in Figure 10, I could make someone look proud, aggravated, hopping mad, loving, or sneaky.

**Figure 10***Capturing Emotion in my Characters*

One day, I reached the pinnacle of my ability to humanize anything. I drew a house as shown in Figure 11.

**Figure 11***A Person-house*

## Recruiting Others on the Dig: Learning Circle

In keeping with my goals to build domain-relevant skills, my ad hoc mentor Lai Chee suggested I consider the curriculum at *lernOS Sketchnoting Guide* (Krüger et al., 2022). They have a self-paced, 12-week curriculum designed to create and strengthen skills in sketchnoting. She encouraged me to post an invite to others on Slack channels and create a learning circle to meet each week. Feeling the urgency of the project deliverables looming over me, I did not want the added complexity of soliciting participation, coordinating schedules, and organizing a group.

However, I saw a familiar behavioral pattern emerging in my resistance to this suggestion. Born and raised in a culture and family system that prize individualism, I do and have done much of life alone. Not the kind of alone like living in the woods off-the-grid, but the kind of alone where I prefer things my way so I do it myself. There are distinct advantages to this life strategy. There is less inertia or alignment required to move forward. Another advantage is flexibility with timing and duration of the work. There are many benefits in an individualistic approach to a project. In the end, I recognized an opportunity to practice a new pattern of behavior: embracing the collaboration, feedback, and energy available in working with others. An African proverb of unknown origin (Goldberg, 2016) reads “If you want to go fast, go alone; but if you want to go far, go together.” Creating the learning circle was a commitment not only to deeper learning of sketchnoting, but also a commitment to embody courage and creativity in my process.

The Figure 12 below was posted on the SketchnoteArmy Slack channel along with a short message. Four members from Germany, Thailand, France, and Virginia, USA responded and we started the journey together.

Figure 12

*Sketchnote Bootcamp Promotional Visual*



**Troy Schubert** 11:19 PM

if you want to go fast... go alone. If you want to go far... go together.

Join me on a self-led 8-week sprint following the curriculum at "The Sketchnote Learner Path" curriculum here --> [https://cogneon.github.io/lernos-sketchnoting/en/0400\\_Sketchnote\\_Learning\\_Path/](https://cogneon.github.io/lernos-sketchnoting/en/0400_Sketchnote_Learning_Path/) condensed from 12 weeks down to 8 weeks... that's 33% faster!

This is a learning circle, co-led by its members...

Interested? Please direct message me and I will share details.



5 replies Last reply 30 days ago

I had a recent insight in working with this group. I had gotten busy and hadn't done much drawing in a couple days. But I did not get that anxious feeling I normally get when I fall out of rhythm or practice when I'm trying new behaviors or habits. I felt confident that all was going to plan and that even if I did nothing but show up at our weekly meeting and listen, I

would get value from the interaction. The learning circle carried with it some intrinsic inertia. A body in motion tends to stay in motion.

I made several other meaningful connections in the visual community. I talked with professionals who were generous with their time and offered me an opportunity to share my work and ask questions over Zoom calls.

- Melinda Walker – Owner / Manager of One Squiggly Line visual thinking business
- Jon Stuart Pearson – Artist / Writer / Speaker / Creativity Guru
- Wade Forbes - A Thinker Who Draws, Illustrator, Sketchnote Artist
- Doug Reid – semi-retired Thought Partner, facilitator, and creativity mentor

These were people that came alongside me on the journey and shared a piece of themselves. In each case, they offered encouragement and a hand up. While their specific contributions may not be called out, they were a positive and uplifting influence for me.

### **A Significant and Familiar Boulder: Comparing Myself to Others**

Around week three, a cloud descended on me. I had concluded that pretty much everyone had a head start on me and was sketchnoting already. I also concluded that others were significantly more talented than me and that developing this skill wouldn't have much unique value. I was "late to the party". These pervasive thoughts sapped my energy and I had to look at them more deeply.

When I expressed this concern to others, I heard some interesting feedback. They said, "I think there is always room for others to play." In their comments, I heard a mindset characteristic called abundance. And this exposed my polar opposite mindset at play: scarcity. I often catch myself in this worldview that there is "not enough". This originating thought unconsciously shapes my thinking, acting, and experience. Coming from abundance is an

ongoing practice for me: a muscle that I'm building. For me, deeper awareness of this pervasive mindset first emerged in reading Brené Brown (2012); "Scarcity thrives in a culture where everyone is hyperaware of lack" (p. 24). She further describes the source of the toxicity:

What makes this constant assessing and comparing so self-defeating is that we are often comparing our lives... to unattainable, media-driven versions of perfection, or we're holding up our reality against our own fictional account of how great someone else has it. (p. 26)

I continued to excavate my internal dialogue and saw that I had some interesting expectations. I was hoping that me and possibly two or three other people in the world were doing sketchnoting and visual thinking. But it seemed like everywhere I looked, people were doing it. The crazy part is that I had built this reality around me! In the visual community, I had connected with people on LinkedIn, Instagram, and Slack. I was watching videos on YouTube about drawing and sketchnoting. All of my social media activities were feeding the content algorithms that these platforms use to filter and push similar content back at me. No wonder it seemed like everyone was drawing!

In that moment, I became aware of an internal tension: a polarity. I noticed two aspirations simultaneously drawing me in opposite directions. In one direction, a need to focus on my own creative process and progress... to shut others out and to simply follow my internal musings, curiosity, and purpose. In the opposite direction, a need to see other's work for inspiration, analysis, and learning.

## **A Visual Map to Move the Boulder: Polarity Management**

Puccio (2020) defined a polarity as “a continuum that contrasts pairs of opposites at either end of a single dimension” (p. 146). With supporting references (Johnson, 1996; Jung, 1960; van de Steur, 2018), he further identified the following four characteristics of a polarity:

- The opposing poles must be interdependent. Both poles are necessary for the system to function;
- The opposing poles must be value neutral. One pole is not inherently good or better than the other pole;
- The dimension represented by the polarity is enduring. Unlike problems that fade away once they are solved, polarities are ongoing; and
- Emphasis on one pole over the other eventually leads to a breakdown of the whole (Puccio, 2020, p. 146)

To offer a relatable example, we confront polarities when we deal with dynamics such as work-life balance.

Johnson (1996) developed a methodology for navigating these types of dynamics called Polarity Management. In that methodology, he created a visual-spatial framework (Quality and Equality, 2021) for facilitating awareness of the interplay between the contrasting pairs. He uses specific language to identify the flow of energy between the poles. Johnson asserts that both positive and negative outcomes are associated with each of the poles. Focusing on one of the poles initially returns positive results. Over-focusing on that same pole to the neglect of the other pole will begin to manifest negative outcomes.

In the work-life polarity above, if I over-focus on work to the neglect of my personal life, what happens? I’m burned out and need a vacation. My family life suffers. If I over-focus on



my personal life to the neglect of work, I might miss project deadlines or not make enough money to buy groceries. This example packages the language and concept of Polarity Management.

Puccio (2020) captured how people skilled in the practice of creativity operate in this dynamic. They are:

...consciously aware of the dynamics that play out between extreme poles and recognize when it is time to shift their attention or behavior from one pole to the other. Success is not found through a mediocre amalgam of opposite qualities, rather it is holding the poles as distinct and learning to vacillate between the two (p. 147).

In the development of my sketchnoting skills, the cloud that had descended on me was the *self-other* polarity. One pole I identified was a need to focus on myself – to honor my level and follow my creative process. On the opposite pole, I identified a need to observe and analyze the work of others, unlocking a host of benefits that could accelerate my learning.

This visual-spatial map helped identify cognitive pitfalls, and also gave space to identify and acknowledge toxic emotions that could cause friction as well. I moved past the rough spot. I had renewed energy to go forward with deeper wisdom and elevated skills in navigating the dynamics of polarities.

### **Deeper Thinking: Cliché to Metaphor**

Through a post from Lai Chee, I learned about a pre-recorded webinar (ScotViz :D, 2021) offered on Vimeo. The webinar was hosted by Dario Paniagua, a visual thinking coach. The objective of the workshop was to develop an awareness of clichés in our drawing output and provide tools to transform those clichés in metaphors.

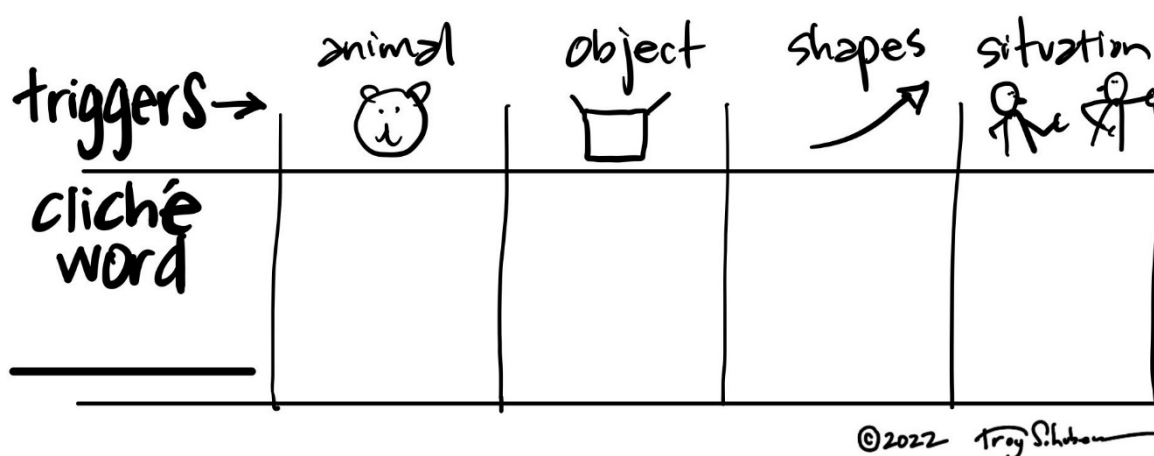
I learned that clichés often arise through repetition, overuse, or efficiency to the extent that they lose their value and impact. For example, when asked to draw the first visual image associated with the word “listen”, people often draw a picture of an ear (cite doug). Dario called this phenomenon a visual cliché and if we draw them, our work will be uninteresting and people won’t engage and read it.

Dario offers a methodology and specific techniques to rise above cliché - to frame our visuals in powerful metaphors. He used the example of “change”. He cited the fact that four out of seven of his graphics recording contracts in 2019 had the central topic of change. Change is a pressing topic, and with so many people talking about, what are some fresh ways to envision it?

The methodology he offered is captured in the framework in Figure 13 shown as a blank template. He calls it the “What it would be? Mental Chart”. The cliché is written in the left column, and then column headings across the top of the framework serve as triggers to generate potential metaphors.

**Figure 13**

*What it would be? Mental Chart*



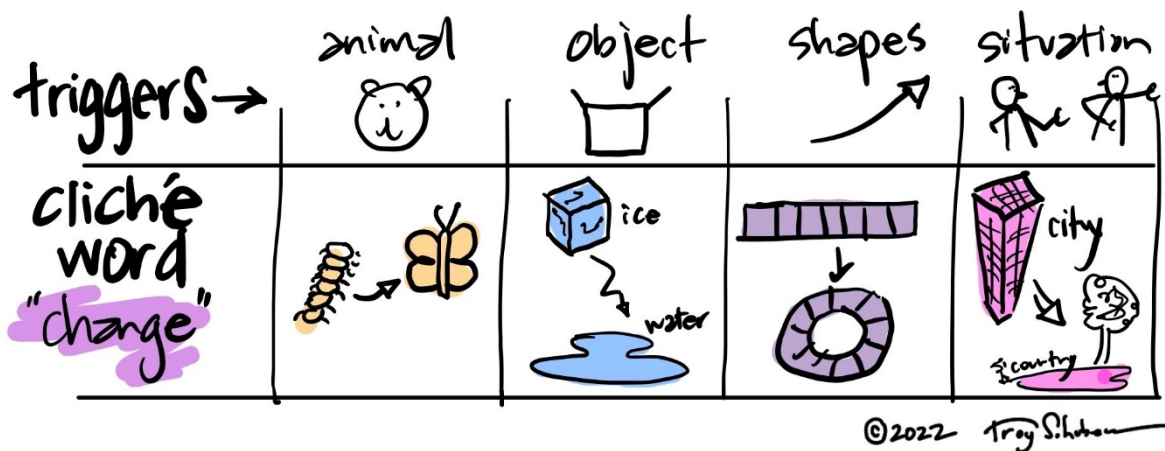
During the workshop, I generated the content shown in Figure 14. The opening questions used in completing the framework from left to right were:

1. When I think of nature in terms of ecosystems and the organisms within them, what might be all the *analogies* or *metaphors* I see for “change”?
2. What might be all the *objects* that come to mind when I consider the phenomenon of “change”?
3. What might be all the *shapes* that express the concept of “change”?
4. What might be all the *situations* that come to mind when I consider aspects of “change”?

I’ve framed these questions in my own words with slight variations. The language does not need to be rigidly fixed. However, the questions should be open-ended to encourage divergent thinking (Miller et al., 2001).

**Figure 14**

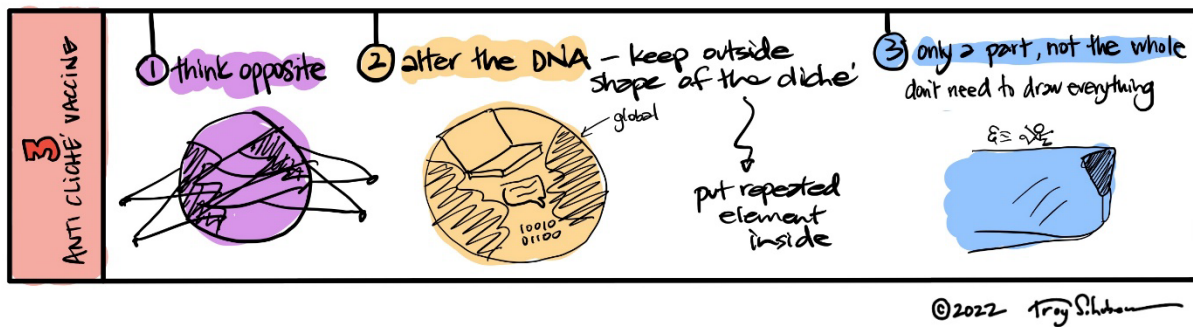
*Mental Chart with Visual Examples Included*



Dario described three other techniques shown in Figure 15. I have included a representative example to show an application of the concept.

**Figure 15**

*Anti-Cliché Vaccine Techniques*



1. Think opposite – for the concept of “change”, thinking the opposite involved visualized the earth tied down and staked to the ground. This implies a resistance to change or a desire to remain fixed. Dario identified the benefit: the technique attracts attention by disrupting the predictable.
2. Alter the DNA – keep the external shape of the cliché’s visual, but fill the shape with meaningful objects that tie back to the message. For the concept of “global communication”, I used the external shape of the earth and fill it with a laptop and some speech bubbles. The benefit is that extra layers of meaning are added to the visual.
3. Only a Part, Not the Whole – zoom-in on a visual cliché and draw something inside. Drawing only a part of an element makes the visual less predictable, but still draws a connection to the bigger context.

I had an opportunity to apply this methodology when I was asked to visualize the concept of “goal” or “objective”? My default visual for “goal” is a checkbox. When the goal is complete, I put a check mark in the box. After working through the Mental Chart, I produced the potential metaphors shown in Figure 16.

**Figure 16**

*Potential Metaphors for “Goal” or “Objective”*



When I consider which options give me energy, I’m drawn to the bee getting honey and any of the SHAPE options. I experience a satisfying tension-resolution rush when I imagine the

incomplete, unbalanced objects becoming completed. This little jolt of energy is synonymous with my experience when completing a goal.

Torrance (1979) designated a creativity skill called *Be Original* that parallels what Dario encourages through his workshop. To facilitate original thinking, Torrance identified a “fairly consistent relationship between the number of alternatives produced and the originality of the thinking” (p. 46). Dario encouraged the use of the Mental Chart to produce many options. Torrance called for adequate time to produce alternatives; also stressing the importance or gravity of the problem. Dario warned that people won’t be engaged by the visual unless we capture their attention. Finally, Torrance encouraged that we affirm the legitimacy of original thinking. Dario shared several compelling and inspiring examples that embody the principles and approach that he is teaching. Through these examples, Dario shows the value of original thinking.

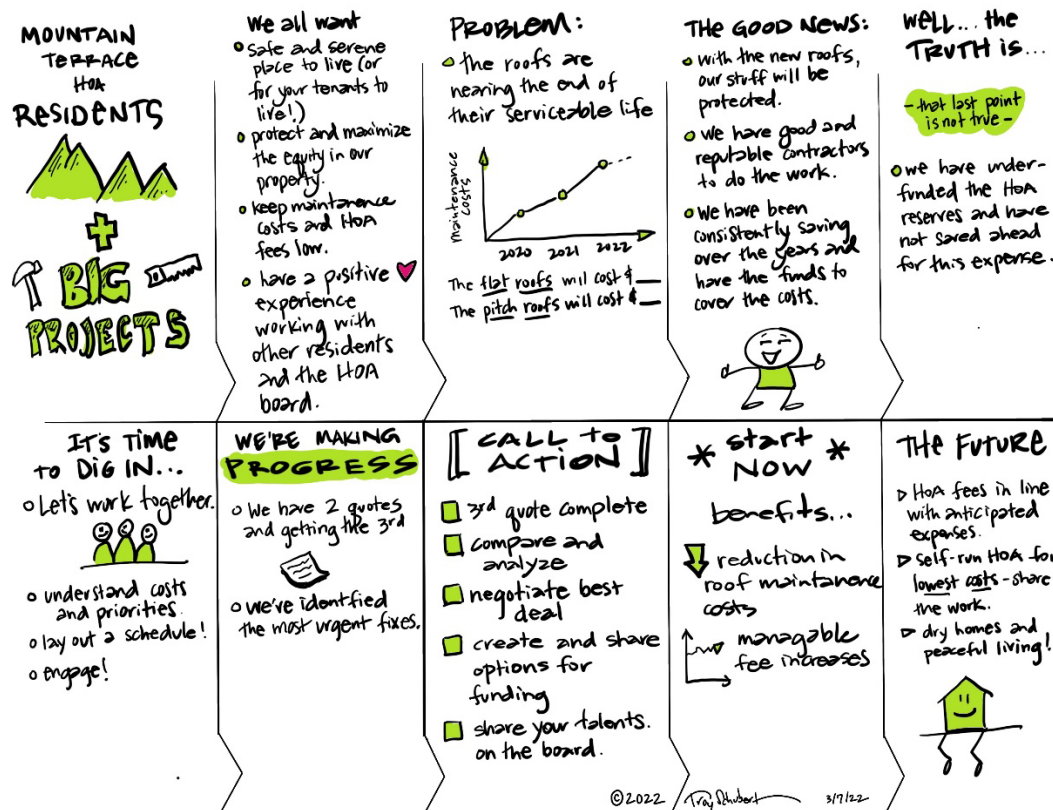
### **Storytime with Dan Roam: The Pop-up Pitch**

Through another invitation from Lai Chee, I learned about Roam’s (2021) *Pop-up Pitch* and *Visual Decoder*. He has developed a simple, step-by-step template for building a presentation on a foundation of storytelling, visual aids, and humanism. I downloaded the templates from his website (Roam, 2022) and accessed a pre-recorded workshop (Roam, 2021b) where he facilitated me through the methodology.

Having recently purchased a condo and joined an HOA board, I saw an opportunity to use the Pop-up Pitch to present maintenance and repair issues to the condominium community. I created the presentation shown in Figure 17, intended to inform the community about a new roofing project.

Figure 17

## Dan Roam Pop-Up Pitch Example



This was completed as a drawing exercise, but was sent to the HOA president as a thought-starter. He said it was useful in helping to frame the communication. The feedback from the Sketch Club was positive as well. In the visual, I liked the use of bold font in the headings. I managed this through finally understanding brush size presets. Initially, I thought it was suffering from lack of meaningful visual elements. On later review, I decided there was enough to make it engaging and unique. The simple color palette was pleasing to me.

When moving through the steps, Roam issues a time constraint of two minutes to encourage more doing and less thinking. This felt chaotic to me. I wasn't confident I had captured all the details, but moved on because the timer said so.



## Reflections on My Progress

Through the telling of the archeological dig metaphor, I've captured some of the key elements that characterize my learning journey. I will articulate a few additional reflections on my work up this point on the project.

My curious nature often lurches forward into complexity and details when I'm learning new skills. In some cases, I allowed this curious nature to lead me into any nook and cranny it desires to go. In others cases, I exercise restraint and focus on simplicity. For example, in absorbing Torrance's creativity-specific skill Visualize It – Richly and Colorfully, I was drawn to explore the world of color - a deep rabbit hole of potentially rich learning. I exercised restraint when I decided that I would start with a very simple color palette and add only one color per week to my toolbox. Inspired to connect to deeper meaning, I used the color palette of a quilt that holds sentimental value for me. Figure 18 is a picture of the quilt. My point is that I kept the color exploration simple but meaningful.

### Figure 18

#### *Color Palette Inspiration*





I intended to draw inspiration from Amabile and Kramer's (2004) "progress principle" as a source of motivation on the learning journey. To be honest, I struggled to stay connected to progress as a source of task motivation. At times, I found I settled into a deeper sense of creative flow when I forgot about progress, goals, and deadlines. Suzuki et al (2011) affirmed this experience, offering a different perspective on our relationship to progress:

Even though you try very hard, the progress you always make is little by little. It is not like going out in a shower in which you know when you get wet. In a fog, you do not know you are getting wet, but as you keep walking, you get wet little by little. If your mind has ideas of progress, you may say, "Oh, this pace is terrible!" But actually it is not. When you get wet in a fog, it is very difficult to dry yourself. So there is no need to worry about progress. ... Just to be sincere and make our full effort in each moment is enough (p. 31).

To the extent that it helps me to focus on progress, I do that. To the extent it helps me to focus on being sincere and making my best effort, I do that. I hold them both.

### **Meaningful Artifacts: Incremental Key Learnings**

In keeping with the archeological dig metaphor, I will share several *artifacts* of deeper learning and significance found through my creative efforts. Schwarz (2005) identified an artifact as a "product of culture... a structure that members create" (p. 20). Anchoring my learnings in context through storytelling conveys a sense of *culture*. *Finding* learning is a play on the metaphor, but more accurately the learning was *created* through the activities and structure of the project.

*Artifact* holds another meaning that parallels the exploratory nature of this project: “Artifact - a spurious observation or result arising from preparatory or investigative procedures” (*Dictionary.Com*, 2022). At the outset of the project, I identified some hesitation for the significance of learning sketchnoting and visual thinking as a culminating experience in my master’s program. I wasn’t clear what the benefits would be or where it would lead me. But I set a path of investigative procedures in my project plan, and as a result these spurious observations were available.

### **Creative Struggle: Like a Dog Digging for a Bone**

I would characterize myself as someone who likes to learn and discover new things. However, my energy falls off when I reach the point where my natural talent ceases to be enough to carry me to the next level of performance or success. However, for those interested in more fully developing a skill, Coyle (2009) guides us to deliberately engage at the edges of our ability. When it comes to deep practice, “struggle is not an option: it’s a biological requirement” (Coyle, 2009, p. 34). Describing the *why* behind this imperative, Coyle explains the vital role of a neural insulator called myelin to help our internal circuits fire stronger and faster. During intense and focused practice, finding mistakes and struggling through them signals the body to lay down myelin insulation along that firing neural pathway. For Coyle, a new model emerged for understanding skill: “*Skill is a cellular insulation that wraps neural circuits and that grows in response to certain signals*” (p. 6).

Part of my creative process involved reviewing the work of other sketchnoters to see what grabbed my attention and what I might like to borrow and incorporate into my own work. In one artist’s work, I saw a font similar to that shown in Figure 19.

**Figure 19**

*Interesting Brush Font that Took Me Eight Hours to Produce*



After looking through all the standard brush settings in ProCreate, I realized this was a custom font. I was determined to create it. I poured through the ProCreate documentation manual to understand the inner workings of brush creation. I scoured the internet for some help. Then I started tinkering with the settings. In ProCreate, double-tapping on a brush brings up 12 sub-menus. Counting all the options within the sub-menus, I determined there are about 126 possible brush parameters. Eight hours later, I still had not created the brush I wanted. I had this cognitive strung out feeling that I get when I over stretch, losing my sense of well-being – all of that time wasted!

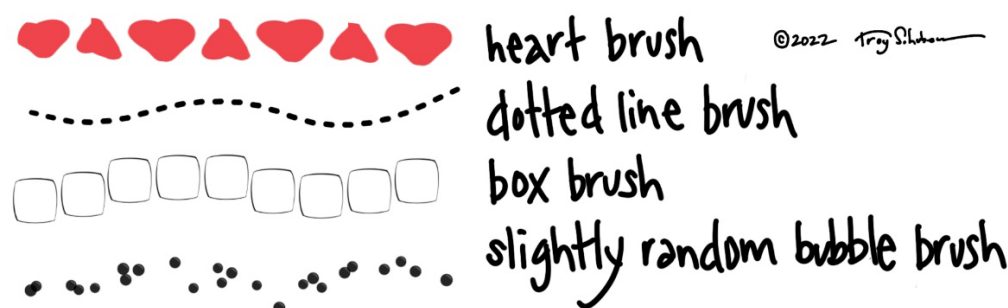
I was ready to give up and decided to try one more search for inspiration. By some fluke, I found exactly what I needed: a tutorial on how to make an “outline brush” (Maple Tree Makery, 2020). But this is not where the story ends.

Once I understood the methodology used to make the outline brush, a stream of ideas hit me. Through the six hours of tinkering, I had learned a lot about brush settings. However, since I had not achieved my goal to create a “combined brush”, I characterized my effort as time poorly spent. But now I had to recast my opinion.

I started assembling different aspects of my learning and came up with several new brushes shown in Figure 20. Each of these brush samples below were made by tracing one smooth line from left to right on the iPad.

**Figure 20**

*New Brush Ideas From Deeper Understanding*



Through this experience, I learned to be cautious when discounting my efforts when I don't efficiently produce a desired result. Through experience, and specifically through our reflection on experience, we create learning.

### **From Pieces to the Synthesized Whole**

Much of my skill building to this point in the project involved developing facility with the basic elements of sketchnoting and drawing. With concentrated effort, I focused on building blocks such as color, hand-lettering, fluency with ProCreate, and drawing expressive characters.

I recently heard a quote of unknown origin: "Success happens when preparation meets opportunity." There was an exciting moment when a number of puzzle pieces came together to produce a meaningful result for me.

One early Tuesday morning at 7AM, a member of the Sketch Club brought a presentation she was working on and posted it to the Miro board. The pages of the presentation were filled with content involving a situation she was engaged in with her clients. Accustomed to operating

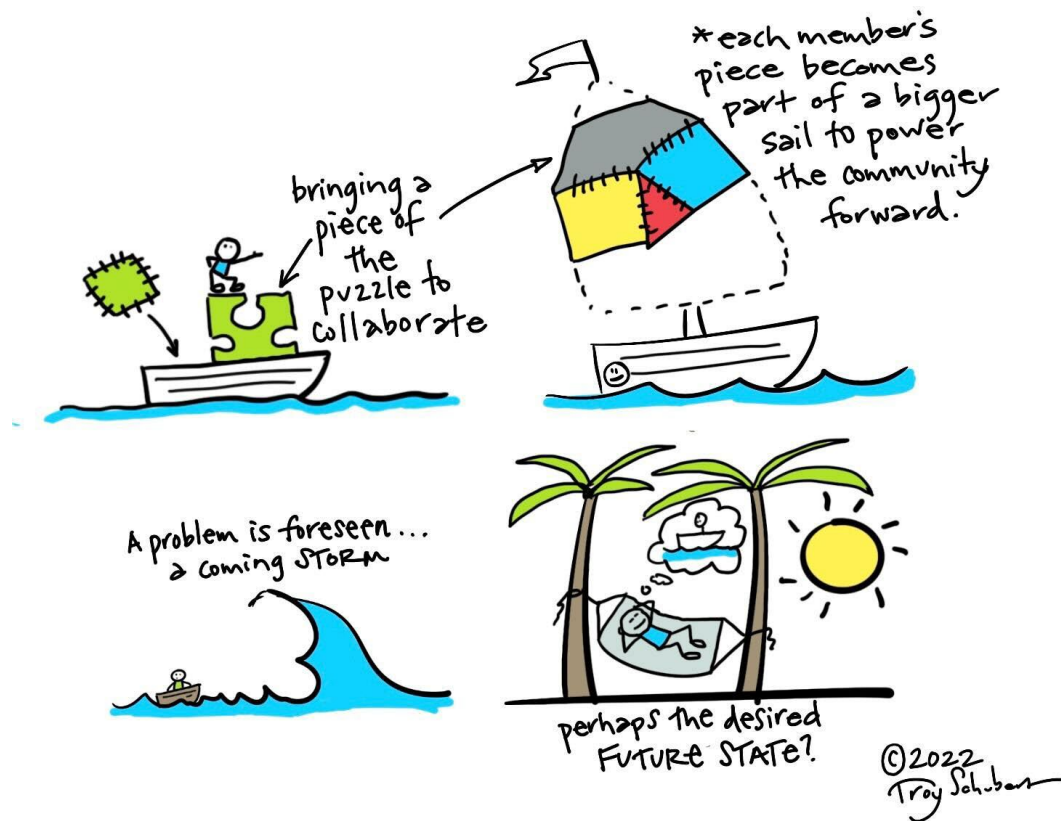
independently, the future called for her clients to break old patterns and engage more interdependently to work as a collective.

While she walked us through the content, I listened carefully and absorbed the details. There was a lot of talking and not much drawing. With only 20 minutes remaining in our meeting, I wanted to push for creating visual content to support her objectives. I had heard a reference to a boat, and I thought that could be an interesting metaphor to follow. There could be a storm at sea – a problem that the group would be facing soon. These two threads of thinking linked back to workshops I did with Dario Paniagua and Dan Roam.

I shared my thoughts with the other members, we aligned that it was time to move forward, and we jumped into drawing. Soon the content started to appear on the Miro board. After I posted, I heard someone say, “Wow, your using color as well?” The comment encouraged me, affirming that I was creating something useful and doing it in an efficient way. An experience of ease and fun emerged. The basic elements of ideation, metaphor, storytelling, drawing, and digital tools came together for me. I fluidly produced compelling visuals as shared in Figure 21.

**Figure 21**

*Compelling Visuals Coming Together!*

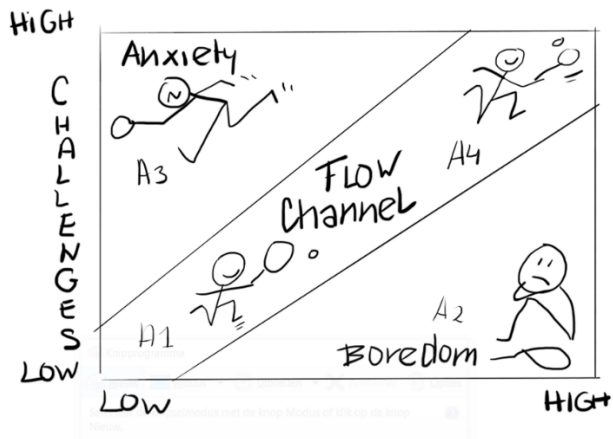


Csikszentmihalyi (2013) captured the essence of my experience when he stated:

“Enjoyment appears at the boundary between boredom and anxiety, when the challenges are just balanced with the person's capacity to act.” Lai Chee shared a sketchnote that captured this message in visual language. She created the drawing in Figure 22 based on inspiration from Shaw (2015).

**Figure 22**

*Flow Channel as Envisioned by Lai Chee Chiu*



*Note.* Used with permission.

My attempt to capture the essence is in Figure 23. The foundational skill building I had been laboring against fell in place, allowing for something larger to come together.

**Figure 23**

*Incremental Learning Coming Together*



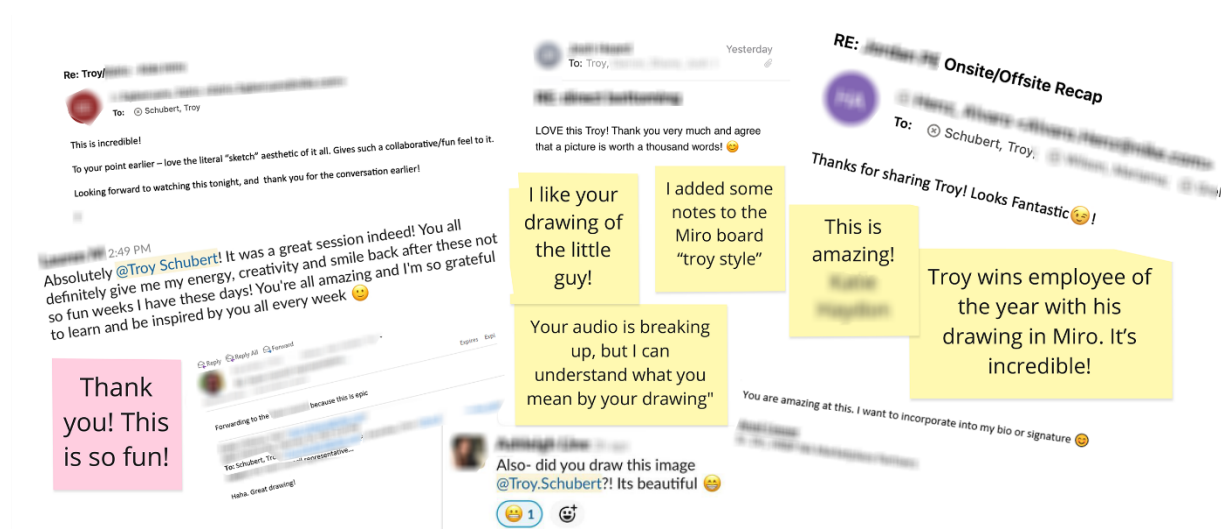
## Feedback is a Gift

To offset struggle and challenges, positive and affirming feedback can create motivation and help pull us through. Amabile and Kramer (2004) identified *encouragement* as one of the four broad categories that contribute to the *Nourishment Factor* (p. 131). Their findings show that positive nourishment in our work environment elevates our inner work life and catalyzes progress, even through the most challenging of conditions. For managers in the workplace, the authors offer: “You nourish the inner work lives of your subordinates when you reward or recognize their good work, encourage them, or offer emotional support” (p. 130).

Throughout the project, I collected any encouraging feedback that could serve as nourishment. While the research by Amabile and Kramer pertains to the workplace environment, I can still apply their findings to my inner work life in the context of this project. Figure 24 shows a collage of quotes and encouragement that nourished me during the project.

## Figure 24

### *Collection of Affirmative Feedback*





Another nourishing point of feedback came from the weekly learning circle. One of the members commented that she has never had a learning experience quite like this one. Each of us in the group contributes to the diversity and value that our time together brings, but I am willing to accept some personal acknowledgement for organizing the meeting and facilitating open dialogue for the group.

Affirmative feedback is a gift. I learned that I can lean on trusted and nourishing people in my environment as a source of encouragement. What else can feedback offer? Captured in Figure 25, Sunni Brown (2015) identified several benefits from sharing our drawing with others (p. 61):

**Figure 25**

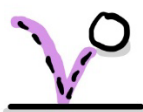
*Sunni Brown's Benefits of Sharing Our Work*

## SUNNI BROWN - The Doodle Revolution

What opportunities are available when I share my work?



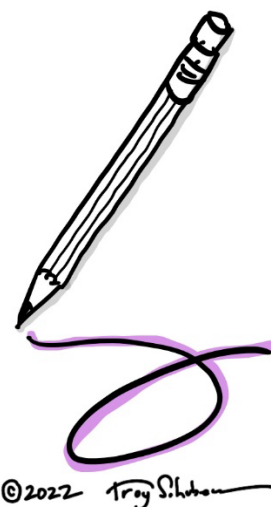
make my work better



thicken my skin &  
improve resilience



sharing my gift: what  
I believe matters



This opens up a new dimension of feedback, one that can potentially be difficult to hear. Indeed, there is vulnerability in putting our creative product on stage for others to see. Brené

Brown (2012) confirmed: “Vulnerability is at the heart of the feedback process” (p. 201).

However, she also encouraged us to move toward and into that vulnerability because it is the “birthplace of creativity, innovation, and trust...” (p. 209).

In the scope of my project, I received two kinds of difficult feedback. The first type came from others. In every case, it was done in a constructive way and came from valid observations. However, it meant that a revision was needed and this meant tearing down and rebuilding. Once I started the revision process, I was fine. But it took significant energy to summon the motivation. The second type of difficult feedback came from myself. I would forget to include some major piece of content in a visual and would become aware of it when comparing my work to others. When I discovered a mistake or some oversight in my work, a common knee-jerk reaction was to put myself down and be less than kind.

In my interview with Walker (personal communication, March 3, 2022), I specifically asked how she manages her inner critic during her public visual recording sessions. She shared a compelling story of a time when affirmative feedback from her environment dispelled the validity of her inner critic, casting doubt on the disempowering perspective that may have been playing out internally. I can envision this happening for myself as well. With practice and manageable challenges, I have the inner resources to practice resilience in situations where my inner critic might come forward.

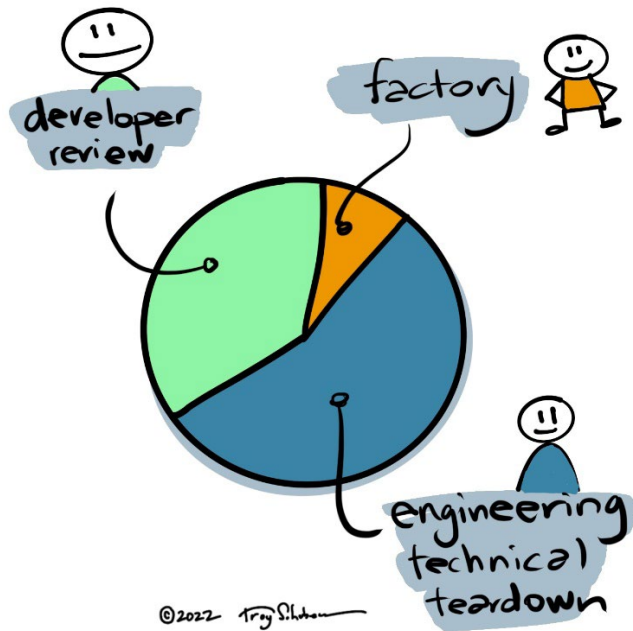
Through the project, my skill in embracing feedback grew stronger. With *encouraging* feedback, I learned to let it in and nourish me. With *difficult* feedback, I worked to become more skilled at cultivating gentleness and giving myself space.

## Collaborative Dialogue using Visuals

An interesting dynamic unfolded when I shared a drawing with a co-worker prior to a meeting. To set the context of our upcoming meeting, I had sent them an e-mail and scheduled a Zoom call. Part of that email included the drawing shown in Figure 26.

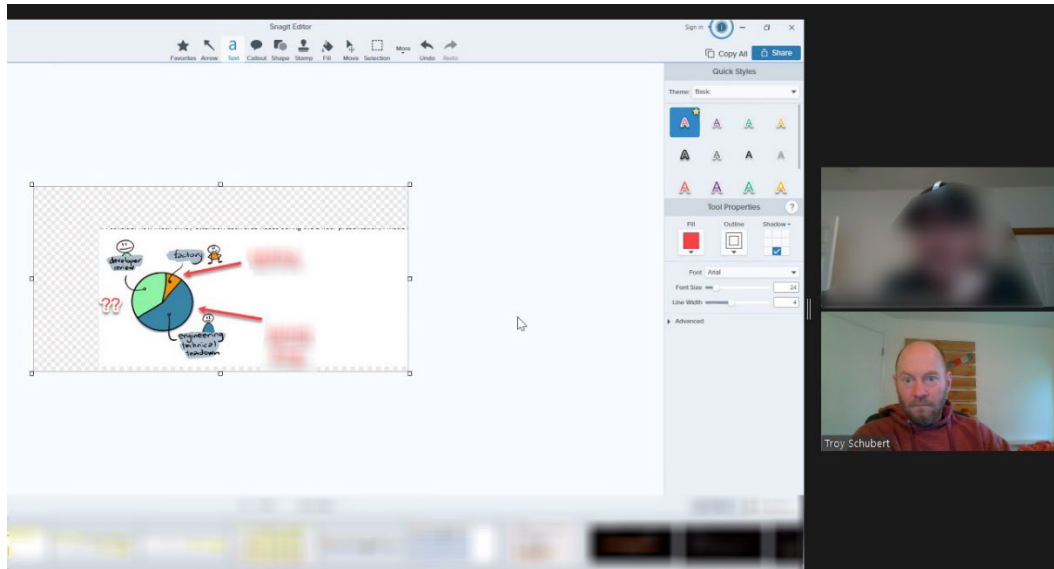
**Figure 26**

*Humanized Pie Chart*



*Note.* Drawing to help convey meaning sent with supporting text.

During our meeting, my co-worker captured a screen shot of the drawing and then began to annotate and label different parts of the drawing. While doing this, they were talking and sharing their thinking. Figure 27 is an artifact of that conversation.

**Figure 27***Zoom Call with Co-Worker*

*Note.* Of significance, my co-worker is adding arrows and notes to the drawing.

I hold this as a significant event. The drawing became a focal point in the conversation. Along with our conversation, the visual aid supported clear communication. This led us to a common understanding of the situation. Further, my co-worker took ownership of the visual and evolved the drawing to a more refined state. When I re-see this visual, I have an almost instant recall of the conversation. The drawing is an artifact of our discussion.

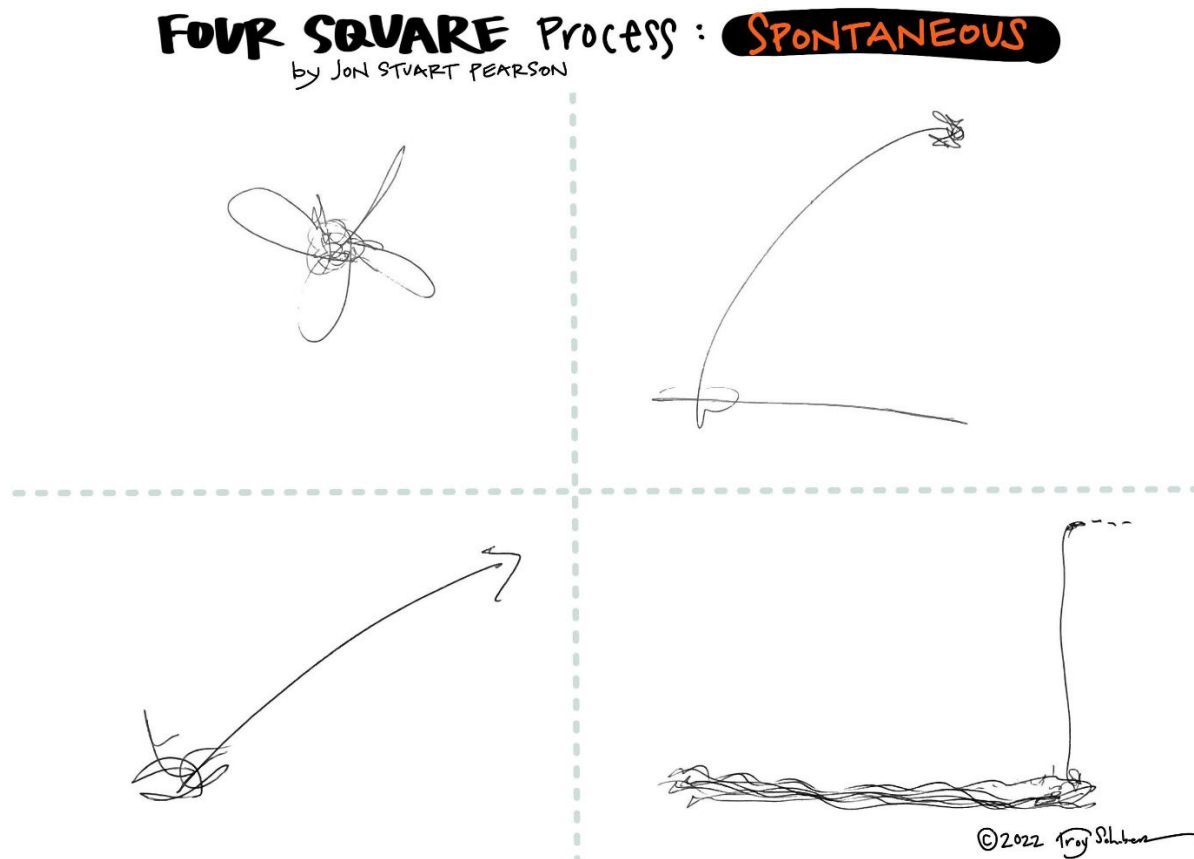
### **Drawing to Discover: Jon Stuart Pearson's Four Square Process**

Drawing can also facilitate a conversation with myself. Pearson (2013) asserted that drawing gives you insights that words alone cannot. In *Twelve Reasons to Draw*, he stated that drawing "... taps the river of nonverbal thinking that constantly flows through our minds" (p. 2). With his *four square* thinking tool, an expressive style of drawing is encouraged as a pathway to discover deeper meaning behind the words we use every day.

Pearson offered some of his time and we scheduled a Zoom call. When it came time to try the four square process, I chose to explore the word *spontaneous*. I had about three seconds to draw in each of four quadrants of a letter-sized piece of paper (see Figure 28).

**Figure 28**

*Four Square Process: Expressive Drawing of Spontaneous*



After drawing, Pearson stated, “Tell me about your drawing”. I began to talk about the shapes and squiggles on the page. The marks I made were not recognizable as objects, but what I noticed is that they carried a certain *energy*. When deciphering the drawings through this lens, Pearson helped me begin to express and articulate my relationship with spontaneity. What I learned is that I value spontaneity. It brings my energy up and creates aliveness. But sometimes

I'm nervous that I will be too ridiculous... I will be too out-of-bounds with a comment or behavior that will be jarring or unwelcome to others. And then people will give me *that look*. I shared about a time when this happened to me. Pearson coached me through how to manage that with communication.

The technique was powerful. The way Pearson guided the process encouraged me to find a direct line of communication from my gut to my writing instrument, bypassing the cognitive filters and expressing deeper truth. This expressive drawing style and the inquiry that followed helped me learn more about myself – to connect within.

## SECTION FIVE: DEEPER APPLICATIONS

In the arena of the educational classroom, Hyerle et al. (2009) highlight a fundamental incongruity in the presentation of learning content:

There is *cognitive* dissonance between the highly constrained linear presentation of information in classrooms as text blocks and the multidimensional mapping of mental models that the brain-mind naturally *performs* when processing and crafting information into knowledge. (p. 12)

A resolution is offered: apply visual-spatial-verbal mapping to align external content with how the brain actually works. How *does* the brain actually work? That's a deep question, but Hyerle et al. summarized the essence: "We know from research that the brain is dominantly visual and that the real untapped power of the brain-mind capacity is the natural mapping of incoming stimuli, and memory and meaning are greatly enhanced by visual representations" (p. 11).

I am particularly drawn to visual-spatial mapping. The spatial mapping of a concept or idea enhances clarity, captures directionality or flow, and becomes an extension of our ability to think. These elements come together as a supporting framework for self-reflection, awareness, shared understanding, and cultivation of deeper meaning.

During a team building workshop about creativity and innovation, I witnessed an example of this process. Participants were introduced to Kirton's (1976) *adaptive-innovative* continuum, and gained an understanding that adaptive behavior is "doing things better" and innovative behavior is "doing things differently". They were further taught that we each have an innate preferred location on this continuum. Next, a tape line was placed across the room representing the extents of the continuum. Finally, based on self-reflection, the participants

placed themselves at the corresponding relative location on the tape line to prepare for the next step in the exercise. Then a conversation emerged through processing questions aimed at drawing learning from the experience (Gaw, 1979; Thiagarajan, 1992).

This debriefing process brought to life several values that I hold dear. First, the facilitator tapped the innate intelligence and wisdom of the group. Participants were not told what to learn; instead, they created it. Second, an awareness of the diversity of perspectives came into focus. I gained a new appreciation for how others think and broadened how I think. Finally, the hierarchical nature of the teacher-student relationship dissolved. We were *alongside* each other - shoulder to shoulder.

In looking for opportunities to apply visual thinking, I sought challenges where these values could be practiced and come alive.

### **Polarity Management – Applying Metaphor to Visual-Spatial Map**

When I leveraged the tools and methodology behind polarity management earlier in the project, it helped me transcend the self-other polarity. Inspired by the insight I extracted from this experience, I had an idea. Could I create a metaphor to enhance the abstract polarity management spatial framework (Johnson, 1996; Quality and Equality, 2021), making it more intuitive and relatable?

Lengler and Eppler (2007, p. 4) classified this type of visual map as a *metaphor visualization*, serving a dual function. First, the visualization *positions* information graphically to organize and structure it. Second, the characteristics of the metaphor *mirror the dynamics* of the information presented through the visualization.

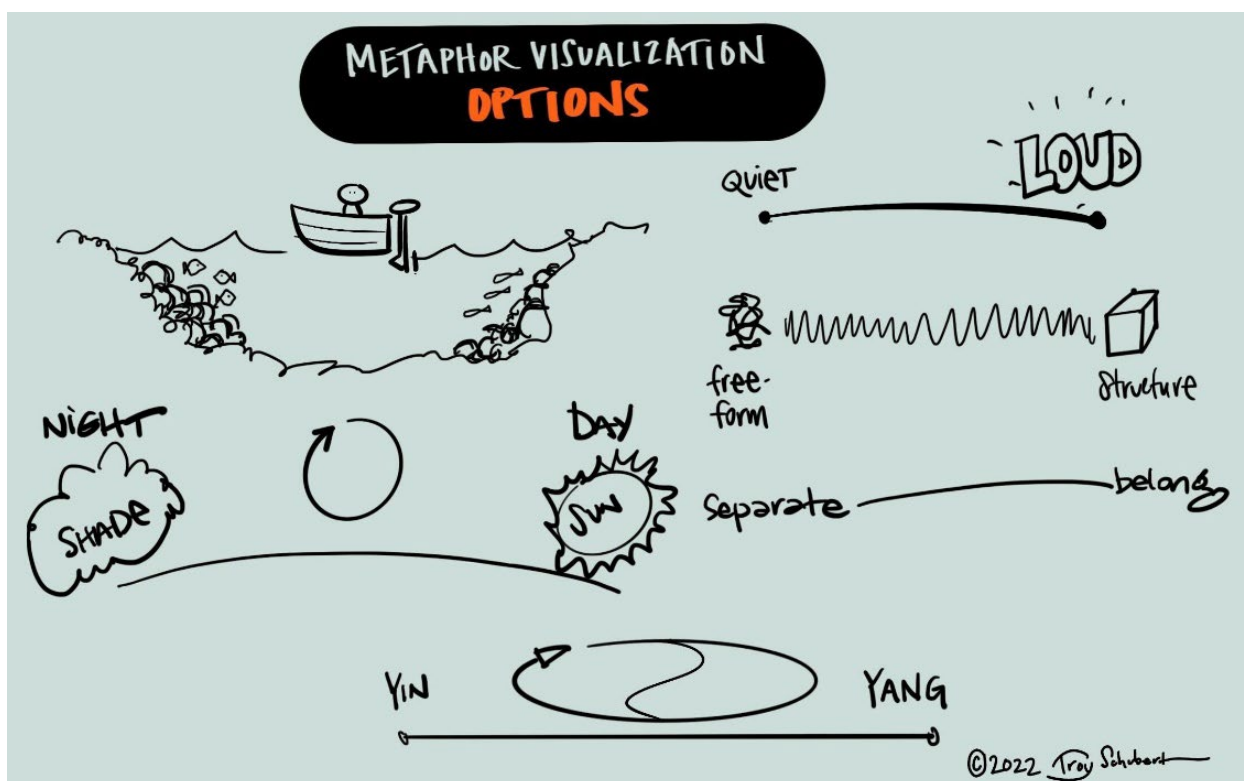
To find such a metaphor, I diverged on potential options (see Figure 29). To converge, I contemplated the options: I really liked the idea of the fishing metaphor. Growing up with an



older brother who loved fishing, I paid attention to where he would cast his line when we fished the Mississippi River. He would seek out calm pools of water near the shore. With the precision of a surgeon, he would cast a floating crawfish into them. The water would explode when the fish struck: smallmouth bass! We had to be near the shore to catch fish, but we couldn't be too close or we'd hang up on rocks and fallen trees. This metaphor fits nicely with the dynamics of Johnson's polarity thinking.

**Figure 29**

*Metaphor Visualization – Generated Options*

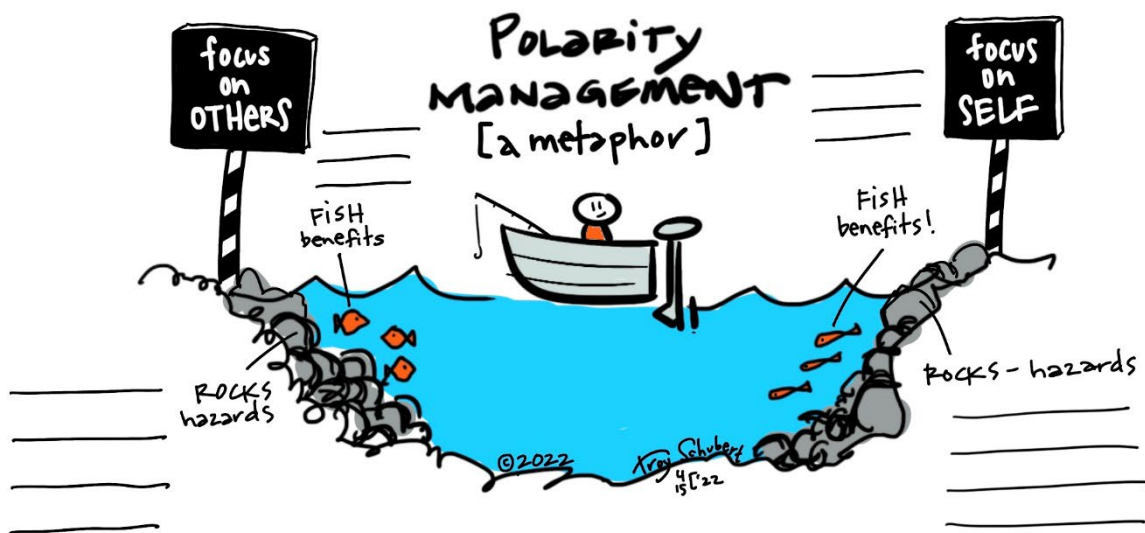


I further developed the visual metaphor, adding color and labeling the poles on either side of the river. The *caution tape* stripes on the sign posts grab visual attention, as does the hint of

3-dimensional depth on the signs. A blue-orange complementary color scheme was chosen to help pop the visual interest of the fish. The finished result is shown in Figure 30.

**Figure 30**

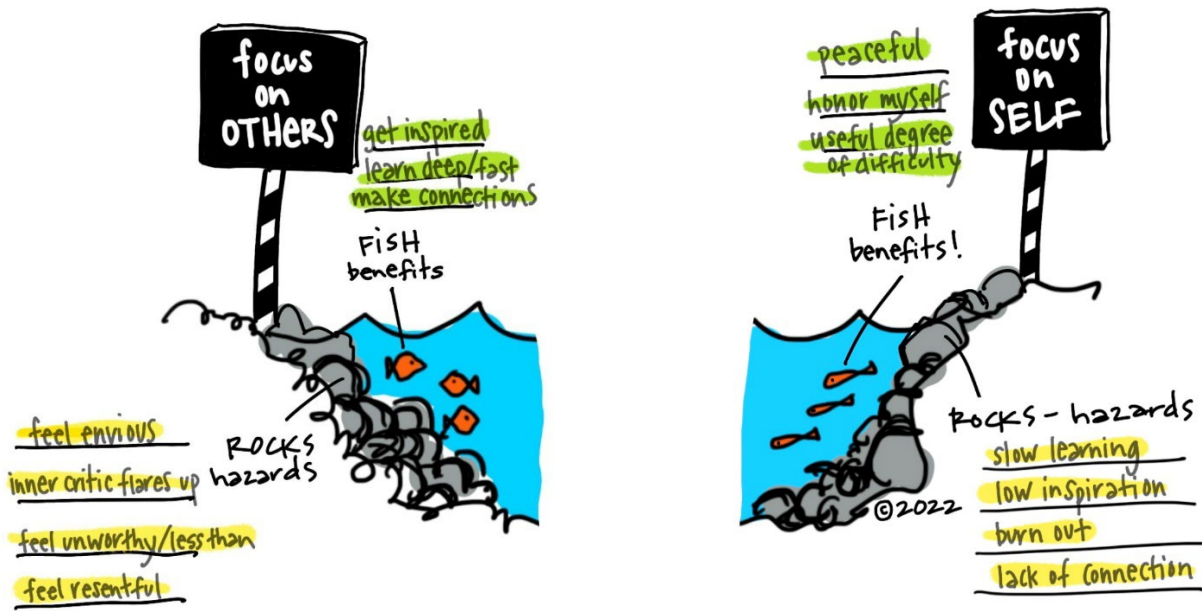
*Polarity Management Visual-Spatial Map – River Fishing Metaphor*



Self-facilitating through this visual map yielded the results shown in Figure 31. I identified the *benefits* of focusing on myself and the *hazards* of being too extreme and neglecting to pay attention to others. I did the same exercise on the other polarity: identifying the *benefits* of focusing some attention on others. But if I over-focus on others to the neglect of myself, I identified the *hazards* or pitfalls that might emerge from that extreme.

Figure 31

*Polarity Management – Results of Self-Facilitation*



A confluence of elements came together to make this result. To evaluate this creative output, I leveraged the criteria offered by Besemer and Treffinger (1981) of novelty, resolution, and elaboration and synthesis. In each of these dimensions, I gave myself high scores.

I shared this with my learning circle and got strong feedback as well. Most compelling from one member was that he could easily understand the concept of polarity management. Another member offered feedback, suggesting to illustrate a sailboat instead of a motor boat. I loved this! She explained that a sailboat has to tack back and forth in the wind to make progress and this precisely maps to the cyclical energy flow between the poles in a polarity.

I'm inspired to share this map with others, to engage in dialogue, and to ask processing questions that open up new insights and deeper levels of understanding. I want to facilitate

connection and creative flow through the dialogue and share the freedom that opened up for me with others.

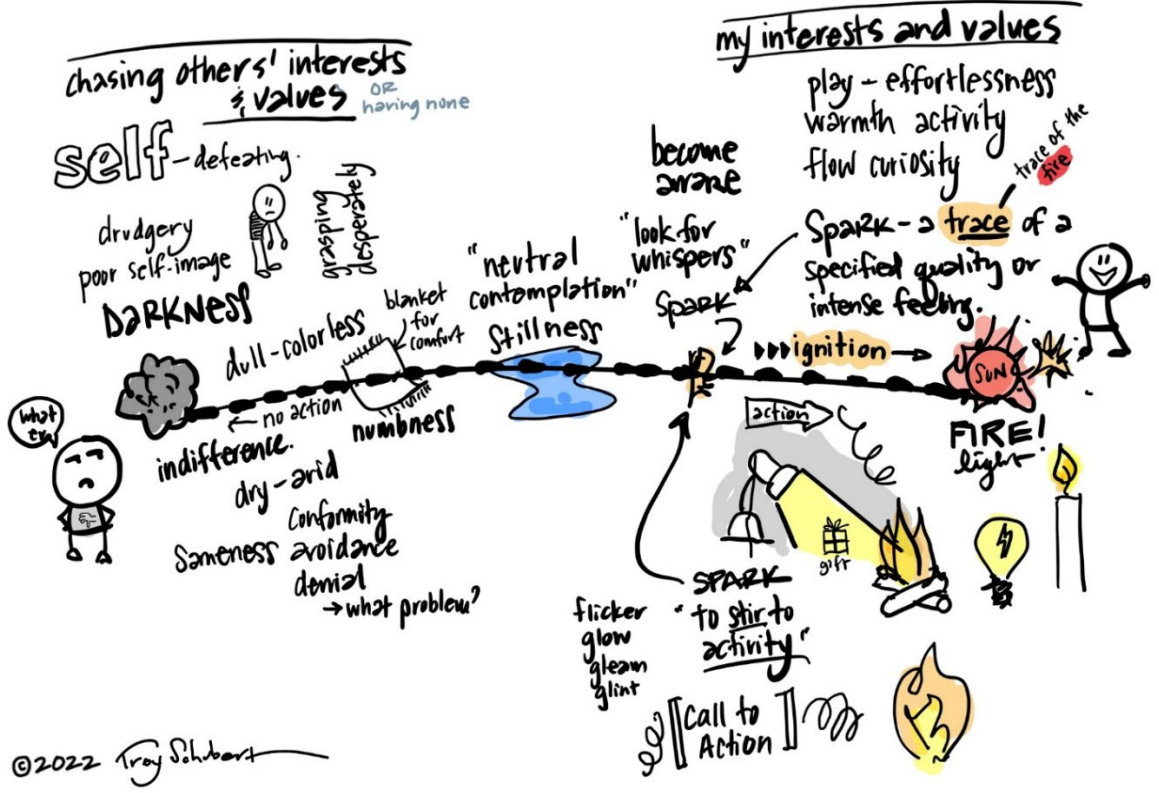
### Lighting Creative Flow – A Metaphorical Map to Find Our Gifts

In collaboration with a colleague, I developed a visual-spatial map through the metaphor of fire. Similar to the polarity management example, the map is a one-dimensional horizontal continuum.

Of interest in this example is the mode and process of idea development that we engaged in. Both with busy schedules, we asynchronously passed voice memos back and forth to develop the content. After diverging on aspects of the conversation, the results are shown in Figure 32.

Figure 32

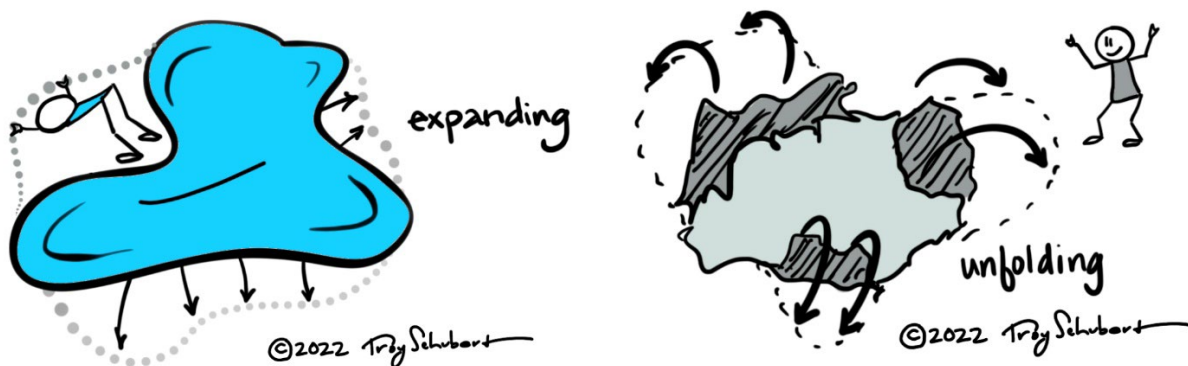
Visual-Spatial Map – Version One



This first version provided a backdrop for more conversation and development, again done asynchronously. We also explored two words that she felt resonated well with mapping the creative journey: *expanding* and *unfolding*. In Figure 33, I created sketchnotes to express these ideas to explore them further.

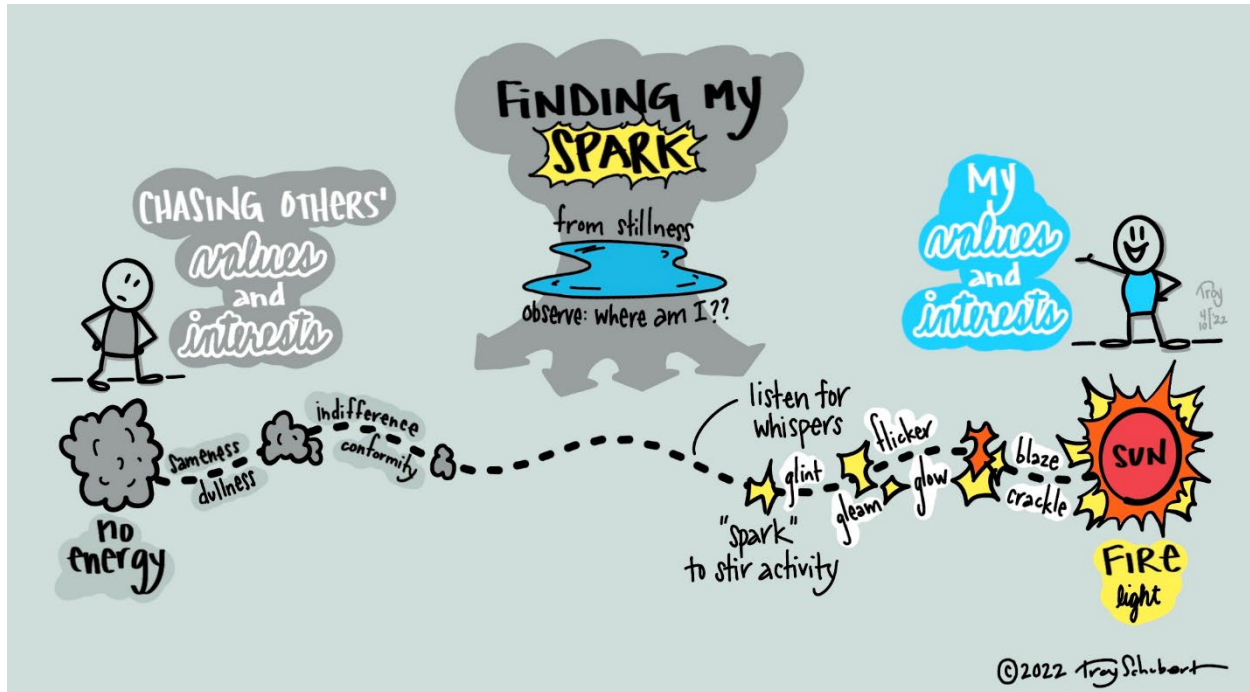
### Figure 33

*Sketchnotes of Expanding and Unfolding*



Before starting on the next version, we had a synchronous conversation to converge on the new direction. The visual-spatial map was revised and included in Figure 34.

Figure 34

*Visual-Spatial Map – Version Two*

A key objective in this version was to reduce the clutter and leave more open space. I had considered using this as a visual coaching tool to facilitate a conversation with someone who is working to grow their creativity.

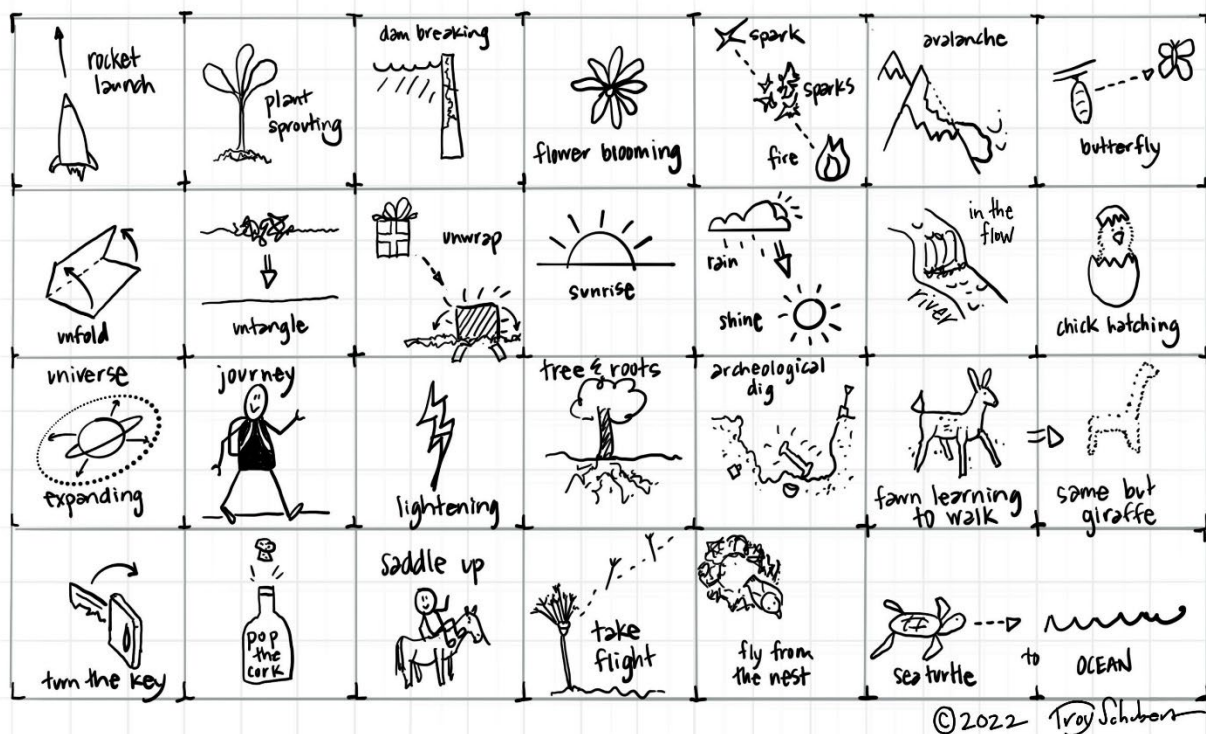
In reflecting on novelty, resolution, and elaboration and synthesis, my primary concern in this visual is for resolution: I'm not sure how well it works. With my collaborator, we agreed to create one additional revision and then take the prototype into testing in live conversations with a client. For the *no energy* pole, it has certainly been cast in an unfavorable light and therefore misses the criteria for a polarity. In the definition of polarity identified by Johnson (1996), there is not a value judgment against either pole. This aspect aside, I see many similarities to the *conformity-creativity* polarity (Puccio, 2020) and I'm confident that insight and learning will emerge through working with the map.



Another subtle aspect deserves discussion and consideration. By placing keywords and content along the continuum, does the visual-spatial map compromise the agency of the user in any way? Perhaps they have a metaphor that is more meaningful and alive for them? In an ideal state, Hyerle et al. (2009) advocate that visual tools “are generated from a blank page by students” (p. 2). During development with the collaborator, I diverged on all the potential metaphors that might connect to this idea of expanding, growing, or discovering. The results are shown in Figure 35.

**Figure 35**

*Results of Diverging on Potential Metaphors*



Clearly, this demonstrates that many options are possible. My point is that limiting the framework to one specific metaphor could have implications. For example, perhaps the *fawn*

*learning to walk* metaphor captures the vulnerability and unskillfulness someone feels when they try something new or unfamiliar. That might be the perfect metaphor for them.

Prosser and Loxley (2008) introduce a broad menu of visual tools for elicitation in gathering information from respondents by researchers in the social sciences. In data generated by the respondent, there is a “balancing act undertaken by all visual researchers... on the one hand, they may emphasize researcher knowledge and expertise, and on the other hand stress participant’s role and insights; the abiding dilemma around research ‘on’ or ‘with’ respondents” (p. 17). Methods such as graphic-elicitation are participatory where respondents react to stimuli which they “create and manage themselves” (p. 24). These types of methods emphasize “collaborating ‘with’ respondents and seeing them as experts in their own lives” (p. 17).

I concede there is rarely a *one-fits-all* approach to having a dialogue with another individual that generates insight and moves them forward, and the practitioner needs to determine where to meet the client. The point is that consideration should be given to how much stimulus is created for the users of a visual-spatial map, and how much should be left to the intelligence of the user.

### **Shared Learning – Racial Microaggressions**

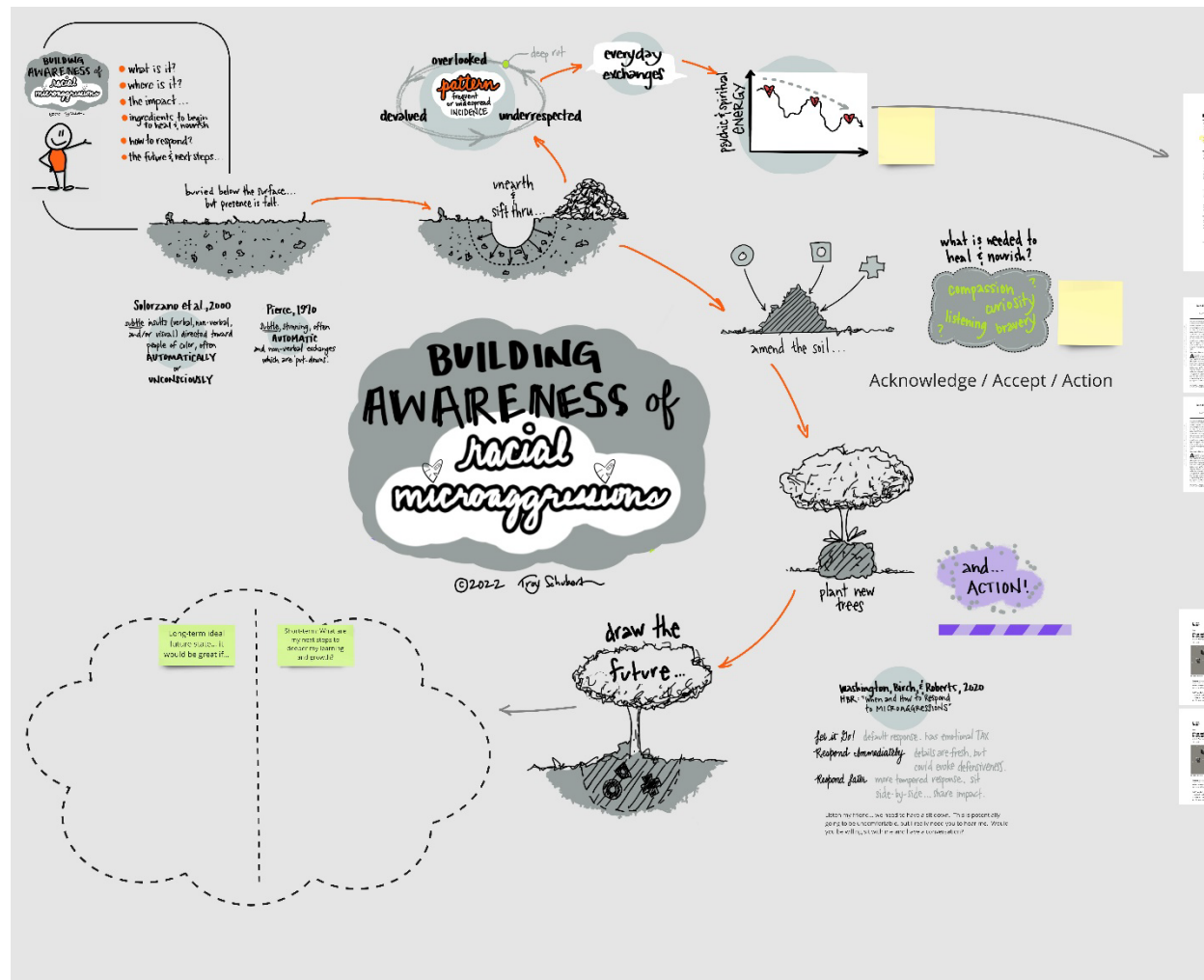
The organization where I work has been putting significant effort into broadened awareness of diversity, equity, and inclusion. As part of my annual goals, I set an intention to learn about racial microaggressions. Sue et al. (2007) defined racial microaggressions as “brief and commonplace daily verbal, behavioral, or environmental indignities, whether intentional or unintentional, that communicate hostile, derogatory, or negative racial slights and insults toward people of color” (p. 217). The learning documentation provided by my organization included some excerpts from literature, including a simple 3-column table listing examples of



microaggressions. I challenged myself to apply some sketchnoting kung fu to bring the information to life. Figure 36 shows the results after two rounds of feedback and revisions.

Figure 36

Building Awareness of Racial Microaggressions – Sketchnote Learning Path



Note. Right side of the figure included the full copy of research papers for the option of deeper learning. They were cropped from the view to highlight the visual portion of the figure.

Some of the elements built into the design of the visual included:

- Anchoring the learning content inside the metaphor of *planting a tree*
- Defining landmarks in the path to invite open dialogue
- Using dashed lines to convey incompleteness to create visual tension
- Minimal use of color
- An architectural style of sketching for the tree, cross-sections, and soil

In developing this visual, I tapped into the creative process outlined by Margulies. They offer a six phase guideline including:

*Generate* – Draw a central image and add main key words and symbols.

*Associate Freely* – Branch out with more ideas and connections. Don't judge your ideas during this phase.

*Review* – Review the map as a whole, adding new ideas as they occur to you.

*Incubate* – Take a break from the task... then return with a fresh perspective.

*Organize* – Prioritize and highlight important points. Group related ideas with symbols, arrows, and lassos.

*New Map* – Redraw newly organized mind map in clockwise sequence.

(Margulies, 2002, p. 27)

After the first round of revisions, I invited a colleague to walk through the learning path and offer feedback. We had some vulnerable dialogue inside this emotionally-charged topic, and I grew through that experience. When we talked about the ideal future state, she said she didn't know what to even say. I asked her to draw it. She said she had no idea how to draw it, but it

was a place where everyone came from the heart. I caught a glimpse of an internal image of what that might look like. It was sweet to share that moment of connection with my colleague.

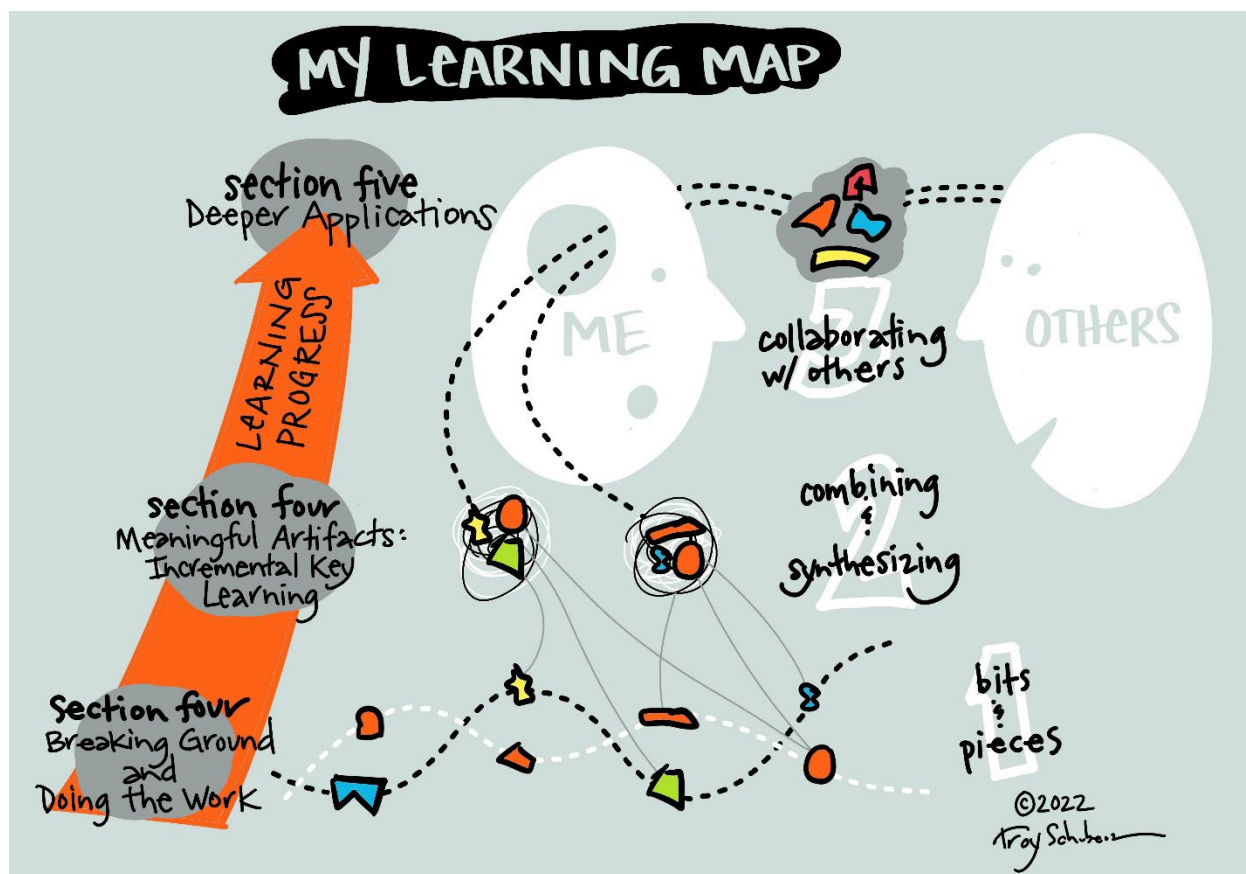
## SECTION SIX: CONCLUSION

### Tracing My Steps Back

Reflecting on the progression of my learning, a distinct pattern emerged. I couldn't see this pattern until I started to draw it. The results of the visualization are in Figure 37 showing the hierarchy and progression of my learning.

**Figure 37**

*My Learning Map: Progression to Deeper Applications*



Section Four opened with *Breaking Ground and Doing the Work*. Here, I shared *bits & pieces* of learning – developing skills at the most basic level. In *Meaningful Artifacts*:

*Incremental Key Learning*, I began to *combine & synthesize* those elemental blocks to create more meaningful, expressive, and useful visuals. Finally, *Section Five: Deeper Applications* chronicled case studies where I used the visual tools in the service of *collaboration* and shared understanding with others.

It's helpful to see my learning captured in a single visual. In real time, the pattern emerged over 60 days. In this storyline of this document, it spanned 42 pages of writing. But this single visual has the ability to compress the sequence into an image that shows the relationship, connections, and meaning. That is powerful.

### **Meditation Helps**

In manifesting creative product, meditation helps. Meditation is the practice of becoming deliberately aware of my inner self, including my thoughts and feelings. During this project, I spontaneously began attending 30-minute group meditation sessions several times per week. More accurately, awareness helps; meditation is a method through which awareness has the potential to emerge.

I was surprised to discover the subject index in Torrance (1999) with ten entries under the topic of meditation, and a significant portion of the chapter on the creativity skill *Visualize the Inside* dedicated to citing literature that validates the benefits and applications of meditation. In concluding remarks, Torrance states, "From the data already presented it is reasonable to expect that the various disciplined meditation techniques might improve [internal visualization ability]" (p. 172).

Where did awareness help me on this project? In navigating the dynamics of polarities, I used awareness to listen. In awareness, my attention shifts to that of a detached observer. I

listen for the early indicators of the negative outcomes that arise from over-focusing on a polarity.

Gordon (1961, as cited in Torrance, 1979) defined a methodology called the *Cherry Tree Technique*, a guided visualization to disengage from a problem: metaphorically, to climb a cherry tree and look out over the world. In striving for the *unity of opposites*, Torrance identified this technique as one of several potential strategies to achieve that goal (p. 55). In studying Torrance's definition of opposites, it's clear that he is referring to the same dynamic of polarities discussed earlier. (Johnson, 1996; Puccio, 2020) A common message emerges from all of these creativity scholars: *creative behavior involves skillfully managing the dynamics of polarities*.

I've learned that I need to pay attention to polarities and how I respond to them. Awareness is a foundational skill that facilitates how I navigate the dynamics of the polarity. And I can strengthen awareness through meditation and sensitivity to my inner self – my thoughts, feelings, and intuition.

### **Hidden Gifts**

In my late 20's, I took an aptitude test at Johnson O'Connor Research Foundation in Boston, MA. In their research, assessments were developed to isolate and measure aptitudes – our innate abilities. Some examples of these aptitudes include structural visualization, ideaphoria, foresight, and inductive reasoning. (Wilson et al., 2021) The first assessment developed in 1922 was a dexterity test, designed to identify those who had natural ability in the hand assembling of meters at General Electric. When I received my results, I learned that I was in the 95<sup>th</sup> percentile for the aptitude they call small tool dexterity. This means I'm statistically in the top 5% of the population in this aptitude. The person debriefing the results with me

laughed and said he had no idea what I might use that for unless I wanted to assemble electric meters.

An element of my work in sketchnoting that stands out is my hand-lettering. When I was in 3<sup>rd</sup> grade, I learned cursive writing. My lettering almost perfectly matched the lettering chart posted above the blackboard at the front of the room. Due to the quality of my handwriting, my 3<sup>rd</sup> grade teacher, Mrs. Colvin, still remembered me when I saw her nine years later at a high school event.

I never considered how these handwriting and dexterity aptitudes could be leveraged. It is a gift that I have mostly disregarded or shrugged off. Like water to the fish, sometimes it's hard to see and acknowledge the little miracles that we carry with us. Through this project, I have a new appreciation for my gifts.

### **Less Thinking, More Doing**

In the course of completing this project, I did less thinking and more doing. This new channel of energy spilled into other areas of creative endeavor. For example, I wrote and recorded a new song on my guitar and shared it with friends for feedback. I completed a second revision as well, demonstrating my willingness to dissolve what's done and build onward. Typically, my songs never make it further than a few verses and are rarely recorded. I believe 2013 was last time I recorded a song. This is a breakthrough in creative expression and production.

### **Right Size Challenge**

In the beginning of the project, I attempted some exercises with a high degree of difficulty that weren't enjoyable. My German friend in my learning circle characterized these types of experiences as "full of stress". I learned it's ok to slow down. It's imperative that I slow down.

Coyle (2009) encouraged this practice of slowing down in order to create deep learning, and also helped me re-learn to embrace some struggle in the service of building more myelin.

Csikszentmihalyi has a fitting quote: “Enjoyment appears at the boundary between boredom and anxiety, when the challenges are just balanced with the person's capacity to act.”

### Connection Through Drawing

I learned that drawing is a point of connection with others. While working the project, I took many opportunities to share even the smallest scribble. I was talking with a friend and he was preparing for a job interview the next day. As we were talking, I was busy drawing. After the call, I sent him a text wishing him good luck and attached the drawing shown in Figure 38.

**Figure 38**

*My Friend Going for a Job Interview*



He responded with laughter and said he hoped to remember to put his pants on.

Each time, my show and tell sessions were met with laughter, enjoyment, and lightness. Pearson says that drawing tells our subconscious it's okay to play (personal communication,



April 11, 2022). Through this playfulness, connection emerges. Perhaps for a moment we forget we're adults and enjoy a blip of younger energy from the depths of our personality.

In some cases, my show and tell was met with *their* show and tell. During an informal zoom call within my company, I shared my master's project with a colleague named Edric. Edric's eyes lit up and he said, "I like to draw, too!". Soon he was sharing his drawing and explaining how he was envisioning the future product line. As we signed off of the call, he commented that our meeting didn't go anything like he expected. I could sense he was delighted and full of energy.

### **Where Passion is Expressed, Opportunity Emerges**

In sharing the visual-spatial map of the polarity management metaphor, an opportunity emerged to facilitate a group session with one of the Slack communities. I'm in direct contact with the leadership of the organization and collaborating on how we roll it out. I was asked to propose a process map for the 90 minute event through the lens of Gamestorming (Gray et al., 2010). This is a breakthrough!

### **When I Want to Learn Something New, Connect with the People Who Are Doing It**

The title of this section expresses this simple learning. But I have to admit, this is an unfamiliar pathway and has held uncomfortable moments as I practiced it during the project. I affirm there is deep value here, and I will keep practicing.

### **What I See Myself Doing Next is...**

My next steps include continuing to develop, master, and apply my visual thinking talent and skills. This includes continuing sketch club and learning circle meetings. I would enjoy doing more work with visual-spatial mapping and will spend more time studying Hyerle et al. (2009) and Lengler and Eppler (2007). These are incredible resources!

I was encouraged to look at formalized *training* in visual facilitation. I will explore options in this domain and consider it.

I will continue to sketchnote as much as possible and share it in my workplace. I would like to find a stretch assignment within my company to make deeper connections and find ways to apply my talent in visual thinking and creativity.

## REFERENCES

- Amabile, T. M. (1983). The social psychology of creativity: A componential conceptualization. *Journal of Personality and Social Psychology*, 45(2), 357–376.
- Amabile, T. M., & Kramer, S. (2004). *The progress principle: Using small wins to ignite joy, engagement, and creativity at work*. Harvard Business Review Press.
- Andrade, J. (2010). What Does Doodling Do? *Applied Cognitive Psychology*, 24(1), 100–106.  
<https://doi.org/10.1002/acp.1561>
- Bailie, G. (1996). *Violence unveiled*. Crossroad.
- Besemer, S. P., & Treffinger, D. J. (1981). Analysis of creative products: Review and synthesis. *Journal of Creative Behavior*, 15, 158–178.
- Brand, W. (2017). *Visual thinking: Empowering people & organizations through visual collaboration*. BIS Publishers.
- Brown, B. (2012). *Daring greatly: How the courage to be vulnerable transforms the way we live, love, parent, and lead*. Gotham Books.
- Brown, S. (2011, March). *Doodlers, unite!* [Video]. TED.  
[https://www.ted.com/talks/sunni\\_brown\\_doodlers\\_unite](https://www.ted.com/talks/sunni_brown_doodlers_unite)
- Brown, S. (2015). *The doodle revolution: Unlock the power to think differently*. Portfolio / Penguin.
- Coryell-Martin, M. (2021, February 11). *SketchNoting with Mike Rohde*. [Video]. YouTube.  
<https://www.youtube.com/watch?v=RZZq5W8FY2A>
- Coyle, D. (2009). *The talent code: Greatness isn't born, it's grown*. Bantam Books.
- Csikszentmihaly, M. (2013). *Flow: The psychology of happiness*. Random House.
- Dictionary.com*. (2022, April 12). <https://www.dictionary.com/browse/artifact>

- Gaw, B. A. (1979). Processing questions: An aid to completing the learning cycle. In Jones & Pfeiffer (Eds.), *The 1979 annual handbook for group facilitators*. University Associates.
- Goldberg, J. (2016). *It takes a village to determine the origins of an african proverb*.  
<https://www.npr.org/sections/goatsandsoda/2016/07/30/487925796/it-takes-a-village-to-determine-the-origins-of-an-african-proverb>
- Gordon, W. (1961). *Synerctics: The development of creative capacity*. Harper & Row.
- Gray, D., Brown, S., & Macanuso, J. (2010). *Gamestorming: a playbook for innovators, rulebreakers, and changemakers*. O'Reilly.
- Hyerle, D., Costa, A. L., & Marzano, R. J. (2009). *Visual tools for transforming information into knowledge* (2nd ed.). Corwin Press.
- Johnson, B. (1996). *Polarity management: Identifying and managing unsolvable problems*. HRD Press.
- Jung, C. (1960). The transcendent function In R. F. C. Hull (Trans.). In *The collected works of C. G. Jung* (Vol. 8). Princeton University Press.
- Kirton, M. (1976). Adaptors and innovators: A description and measure. *Journal of Applied Psychology*, 61(5), 622–629. <https://doi.org/10.1037//0021-9010.61.5.622>
- Krüger, B., Damke, K., Bluhm, K., Mäntele, K., Bartschat, L., Zsagar-Renneberg, M., & Rossetti, R. (2022, March 1). *The sketchnote learning path*.  
[https://cogneon.github.io/lernos-sketchnoting/en/0400\\_Sketchnote\\_Learning\\_Path/](https://cogneon.github.io/lernos-sketchnoting/en/0400_Sketchnote_Learning_Path/)
- Lengler, R., & Eppler, M. (2007). *Towards a periodic table of visualization methods for management*. [https://www.visual-literacy.org/periodic\\_table/periodic\\_table.pdf](https://www.visual-literacy.org/periodic_table/periodic_table.pdf)
- Maple Tree Makery. (2020, March 1). *How to make an outline brush in ProCreate*. [Video]. YouTube. <https://www.youtube.com/watch?v=038jpZef438&t=29s>

- Margulies, N. (2002). *Mapping inner space: Learning and teaching visual mapping* (2nd Ed). Zephyr Press.
- Mastronardi, D. (n.d.). *Gamestorming Expedition (online course)*.  
<https://www.gamestorming.group/>
- Messenger, H. (2016). Drawing out ideas: Visual journaling as a knowledge creating medium during doctoral research. *Creative Approaches to Research*, 9(1).
- Miller, B., Vehar, J. R., & Firestien, R. L. (2001). *Creativity unbound: An introduction to creative process* (5th ed.). Innovation Resources, Inc.
- Mueller, P. A., & Oppenheimer, D. M. (2014). The pen is mightier than the keyboard: Advantages of longhand over laptop note taking. *Psychological Science*, 25(6), 1159–1168.  
<https://doi.org/10.1177/0956797614524581>
- Oakley, & Sejnowski. (n.d.). *Learning how to learn: Powerful mental tools to help you master tough subjects (online course)*. <https://www.coursera.org/learn/learning-how-to-learn>
- Pearson, J. (2013). *Draw power*. [Paper Presentation]. CPSI 2013, Buffalo, NY, United States.
- Prosser, J., & Loxley, A. (2008). Introducing visual methods. *ESRC National Centre for Research Methods Review Paper, NCRM/010*(February), 1–60.
- Puccio, G. J. (2020). Polarities in Creativity: Revisiting Amabile’s Componential Model. *Creativity at Work*, 2003, 143–155. [https://doi.org/10.1007/978-3-030-61311-2\\_14](https://doi.org/10.1007/978-3-030-61311-2_14)
- Quality and Equality. (2021, January 25). *Polarity thinking – part 1 & part 2: A conversation with Barry Johnson*. [Video]. YouTube. <https://youtu.be/M4qMUhUNAbE>
- Rhodes, M. (1961). An analysis of creativity. *Phi Delta Kappa International*, 42(7), 305–310.
- Roam, D. (2021a). *The Pop-up Pitch: The two-hour creative sprint to the most persuasive presentation of your life*. PublicAffairs.

- Roam, D. (2021b, October 26). *Building creativity: How to lead, innovate, and change the world with pictures*. [Video]. LinkedIn.  
<https://www.linkedin.com/video/live/urn:li:ugcPost:6859172124213547008/>
- Roam, D. (2022, March 15). *The Pop-up Pitch: Tell a simple story to transform any audience*.  
<https://www.danroam.com/>
- Rohde, M. (2015). *The sketchnote workbook*. Peachpit Press.
- Rohde, M. (2022, March 1). *Sketchnote example*. <https://rohdesign.com/sketchnotes>
- Schwarz, R. M. (2005). The skilled facilitator fieldbook: tips, tools, and tested methods for consultants, facilitators, managers, trainers, and coaches. *The Jossey-Bass Business & Management Series*, xxiv, 546 p.
- ScotViz :D. (2021, April 28). *Scotviz - Dario Paniagua: Transitioning from cliches to metaphors*. [Video]. Vimeo. <https://vimeo.com/542692794>
- Shaw, G. (2015). *The art of business communication: How to use pictures, charts and graphs to make your message stick*. Pearson.
- Sue, D. W., Capodilupo, C. M., Torino, G. C., Bucceri, J. M., Holder, A. M. B., Nadal, K. L., & Esquilin, M. (2007). Racial microaggressions in everyday life: Implications for clinical practice. *The American Psychologist*, 62(4), 271–286. <https://doi.org/10.1037/0003-066X.62.4.271>
- Suzuki, S., Dixon, T., Smith, H., Baker, R., & Chadwick, D. (2011). *Zen mind, beginner's mind*. Shambhala.
- Thiagarajan, S. (1992). Using games for debriefing. *Simulation & Gaming*, 23(2), 161–173.  
<https://doi.org/10.1177/1046878192232004>
- Torrance, E. P. (1979). *The search for satori and creativity*. Creative Education Foundation

Press.

van de Steur, J. (2018). *The power of polarities: An innovative method to transform individuals, teams, and organizations*. Polarity Institute.

Walker, M. (2012). *Visual thinking: Sketching my future as a visual practitioner*.

<https://digitalcommons.buffalostate.edu/creativeprojects/156/>

Wilson, C., Cook, L., Jensen, T., Manes, B., & Wilhelm, H. (2021). *Choosing intelligently: A practical guide to using your aptitudes*. The Writing Committee of the Johnson O'Connor Research Foundation, Inc. <https://www.jocrf.org/wp-content/uploads/2021/12/JOCRF-Choosing-Intelligently.pdf>