

## **Cross-Making**

Cross-Training as a Method for Learning Through Making by Graphic Designers

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Dear Maker,

This text is being written and shared with the intention to bring out, reconnect with, and foster the forgotten, blocked, or hidden maker that already exists within you. It's a reflection and investigation on what I've encountered in my process as someone who learns through making, and I'm sharing this with you in case you happen to be on a similar journey so we can support each other in some way.

As makers, we process and synthesize information in a hands-on way that requires constant trial-and-error which can be exciting as it is frustrating. It can be a bumpy path to navigate, sometimes with nonexistent ones that need to be paved as we go, but I'm here to reassure you that it'll be a worthwhile journey despite the obstacles that we'll face. If this resonates with you, I invite you to join in, be it as an observer or a see-for-yourself-adventurer. It's a small gesture, but I hope that it can be an encouraging one that can empower you to (re)discover the urge to make (and break).

Together let's find out how being frustrated beginners in the learning process can be valued as a constructive stepping stone that helps us unlock insights and discoveries about our practice. How can we adapt to the frictional environments that we find ourselves in by embracing our pace, working with what we have, and leveraging them as tools that can help us break through the thresholds?

When you enter this frictional world, you'll find yourself in an interstitial space where the small things are magnified. Everything's slower and quieter, and for the first time, you can see and hear things that can get blurred into the background or muffled in the hustle and bustle of deadlines and deliverables. You may come across things that might not be visible to the naked eye or have voices of their own, but here, you're free to find or invent ways to communicate and interact with them. It's a moment to tune in with your surroundings and acknowledge your own ways of seeing and doing things so that you can finally let your freak flag fly.

We're not here for a smooth and seamless user experience--we're here to expand on and celebrate the friction and the bugs, the hiccups and the latencies--the natural part of the process that is tucked beneath clean, streamlined interfaces. Let's unlearn the things we've learned to quickly resolve as a reflex, and instead sit with it, understand why things are happening in certain ways, and try to understand it from wherever we are in our journey.

Let's get to making!

Your Future Cross-Maker-in-Training Buddy

Dear Future Cross-Maker,

I'm glad to hear that you'll be joining the journey!

Let's explore the exercise regimen of cross-training as a means to make. I'll be your Cross-Maker-in-Training Buddy, and I'll walk you through what to expect and accompany you along the way.

Together we'll find out if cross-training can be applied as a method for learning through making by graphic designers. As you read on, you'll be invited to try out the roles of kinesthetic and visual learners<sup>1</sup>: an Athlete and a Graphic Designer. You can recombine and reconfigure their approaches in ways that contribute to your own creative processes, and by the end of your training, you'll unleash another facet of the maker that you already are: the Cross-Maker!

You'll receive parts of the training that will be delivered to you in the form of letters. First, we'll begin with warm-up and stretching sessions to unpack this metaphor of cross-training from the sports domain and apply it to a creative one. We'll familiarize ourselves with the terms, then read stories about how an athlete and a graphic designer deal with plateaus and in their training routines.

Then it's the kick-off of the Cross-Making sessions! Each day, you'll receive a suggestion for an exercise to try, along with entries from my DIYry/DIWOr<sup>2</sup> to share my experiences related to that exercise, in case you need some inspiration or moral support.

In the meantime, here's the program overview:

Session	Program	Role
1	<a href="#">Warm-Up</a>	Athlete
2	<a href="#">Stretching</a>	Graphic Designer
3	<a href="#">Cross-Making: Orientation</a>	Cross-Maker-in-Training
4-9	<a href="#">Exercises #1-6</a>	
5	<a href="#">Cool-Down</a>	Cross-Maker

<sup>1</sup> According to the VARK model by Neil Fleming, there are four sensory modalities that describe different learning preferences that reflect how students learn best (Cherry, 2023). Kinesthetic or tactile learners learn best by touching and doing, and have a preference for movement, experiments, and hands-on activities. Meanwhile, visual learners learn best by seeing and prefer to see information presented in a visual way (through pictures, movies, diagrams) rather than in written form (ibid).

<sup>2</sup> Just like a diary, but for logging Do-It-Yourself or Do-It-With-Others adventures!

Don't forget, this program is created for makers like us, so feel free to customize, modify, or hack it so that it not only matches your pace, needs, learning and making styles, but also sparks your curiosities!

See you at warm-up!

Your Cross-Maker-in-Training Buddy

Dear Athlete,

Welcome to the first warm-up session!

We'll lay the foundations and set up a safe space where we can learn, experiment, and make mistakes together. We're just getting acquainted with concepts and approaches that may be unfamiliar to some of us, so let's also remember to be patient with ourselves and make time for these new inputs to sink in. Let's get started!

1. **Plateau:** a period of stagnation<sup>3</sup> or regression of an athlete's performance (Stewart, 2022). A plateau occurs when the body begins to adjust to the demands of an exercise routine as a result of a particular training or goal, so when it becomes accustomed to the stress placed upon it, a periodic jolt is required to get things back on track (International Sports Science Association (ISSA), 2019).
2. **Cross-training:** an exercise protocol that incorporates several modes of training that are outside the athlete's main sport (Preiato, 2021). Rotating activities with different levels of impact will keep your body guessing, so not only will you overcome your plateaus and lower the risk of injuring or overusing a specific muscle or joint (American Heart Association, 2018), but also continue to see improvements to your fitness and health (Williams, 2020).

For example, if your sport of focus is running (high impact), you can incorporate cross-training in your training regimen by including activities like walking and yoga (low impact), or swimming (no impact). Essentially, you can choose any activities that won't interfere with your recovery and can mimic the requirements of your main sport of focus in order to maintain a well-rounded workout routine (ibid).

One key aspect of choosing the most beneficial cross-training activity is to go for ones that you truly enjoy so that it'll be easier for you to stick to it in the long run (Stewart, 2021). After all, they should be fun and not feel like a chore!

Next, we'll find out how graphic designers can benefit from cross-training and use it to break through plateaus in their practice.

See you at the Stretching session!

Cross-Maker-in-Training Buddy

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<sup>3</sup> To look at it from another angle, it's also a positive sign you're making progress (American Heart Association, 2018). The fact that you're willing to take action and get yourself out of this standstill already shows that you have a growth mindset and are driven to push past hurdles--one which you can leverage as a method for tackling steep learning curves!

Dear Graphic Designer,

Let's now find out how a method from the sports domain can be applied to a creative one.

Before we begin, I'd like to invite you to consider this:

**An athlete's approach:** I believe that there's an athlete in us all. After all, everyone has the strength, fitness, and flexibility to perform in whichever field they're in. Can we rethink athleticism as a mindset or a way of doing things that isn't limited to just sports?

**Graphic Designer = Athlete:** In the same way that athletes have their sports of focus, we're no different--like those who focus on [running]<sup>4</sup>, we focus on [graphic design]<sup>5</sup>. Just like athletes, we also go through intensive training and face plateaus. That's why it's helpful to switch things up and train other muscle groups so that we don't burn ourselves out in the process. By doing so, we'll also develop wider ranges of motion so that we're prepared to deal with future plateaus and to adapt to foreign environments.

Read on to find out how a plateau led a fellow graphic designer (also a participant of the program) to discover that cross-training was the solution that she needed to expand from her sport of focus:

1. **Training equipment:** Like how an athlete uses specific equipment to train with, so do we. For some of us, we were trained to use a mouse, a keyboard, and Adobe from day one, and are expected to still do so as they're the industry standard equipment in both educational and working environments. For this graphic designer, she became conditioned to feel at home with the presence of such equipment, so whenever came the time to transition into new environments, she felt "safe" as long as they're in sight.
2. **Muscle memory:** This is developed from continuous engagement with a specific activity. In the case of this graphic designer who found herself deeper into the commercial field, her specialization looked like so:

(graphic design (digital marketing design (performance marketing design)))

This meant that her training also became more controlled through the use of specific muscles required for quick turnarounds for deliverables. As a result, keyboard shortcuts became the tool she relied on to facilitate this optimal workflow: finger gestures were paired with specific functions, and combinations were memorized through repetition and association with specific software.

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<sup>4</sup> Insert sport here.

<sup>5</sup> Insert "sport" of focus here.

Years into this routine, the flow was abruptly interrupted by a sudden moment of awareness and dissociation: she watched her fingers perform automated operations but was struggling to catch up with or make sense of the very action herself.

Is flow a good thing after all, when you find yourself in a state of trance that leaves you feeling displaced? Has it been an orchestration of planned choreographies that are fixed to movements and leaves no room for other variations or alternatives all this time?

1. **Plateau:** When speed and quality were the most valuable assets in the working environment, creativity and quality were put on the back burner. With the only equipment she knew to use, she found ways to infiltrate or to “misuse” them as an attempt to break out of the so-called safe environment she felt trapped in.

She wondered: if developers can “imbue” an object “with the power to do something” and if interfaces can “define the roles computer users get to play,” (Lialina, 2018) is it possible to take on the roles of developers and interface designers in our own unspecialized ways?

2. **Cross-Training:** Despite the attempts, the limits of the mouse and the keyboard remained, and the urgency to escape this place she called home grew stronger. It was time to hit the road.

She found her first shelter in physical computing, and it was through this environment where she discovered that there are other layers that also exist behind and beyond these shortcuts and interfaces. For the first time ever, it was even possible to create alternatives of the equipment was trained with. Not only that, but this environment could foster the ‘awkward behavior’ that can help her get a better understanding of the interactions among skills, tools, and medium (Snelting, 2018).

Yet, something still felt out of place. While ‘making’<sup>6</sup> enabled a more liberating way of working where the focus can be on the process itself for a change, its association to ‘fab labs’ and ‘makerspaces’ can also be intimidating for newcomers. Also, while ‘hacking’ and ‘reverse engineering’ were common terms within this space that somehow resonated with her way of working, it was more about applying these methods in broader contexts that are not limited to the field of hardware and electronics.

3. **Cross-Making:** Now going into the Cross-Making program, she learned about another term that she found more relatable:

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<sup>6</sup> Building and experimenting with tools, technology, and materials as a way to create and explore new possibilities (Lang, 2013).

‘critical making’ that “connects two modes of engagement within the world that are often held separate”--critical thinking and physical ‘making’ (Wesseling and Cramer, 2022).

How can we cross-train ourselves to develop tactics of an athlete and a maker to maneuver through the industry pipelines and standardizations and repurpose them as launchpads to explore alternative and more suitable and relatable ways to learn and make? Can learning from other environments help us re-approach the tools we’re expected to use in the environments we were trained in?

Let’s now put this to the test in the next session!

Cross-Maker-in-Training



Dear Cross-Maker-in-Training,

Happy orientation day! Let's go over the program in detail:

### How it works

**1. Mindset:** Learning is lifelong and can happen whenever and wherever, and anyone or anything can be your greatest teachers. With this approach, you'll begin to see that they are indeed always around you. You'll become more resourceful, adaptable, and independent along the way, which will come in handy because your maker journey will not always have company; the human teachers and your fellow makers will not always be there to hold your hands. There will be times when you're out there on your own, and sometimes all you have with you are objects that you have around you.

Sometimes the teachers you may need the most may not also be within the specialized field that you're in or are after, but rather in nearby or faraway fields you never considered visiting. What can be helpful is that you make the initial effort to get out there to explore, so once you're back home it's just a matter of putting the jigsaw pieces together and seeing what picture comes out of it.

**2. Values:** To make it a safe space for everyone to learn and make, let's keep in mind of the following:

- Uncomfortable: Our program embraces friction, and we encourage you to get uncomfortable. Why? Because it's through being frustrated that reveals other sides of our maker selves that can actually help us understand how we learn and make.
- Accessible/relatable: We'll be resourceful and work with what we have around us and make sense for us. It doesn't matter if they're open or closed source, or have high or low learning thresholds--as long as they "get" you and support your learning and making process, you make a good team.
- Playful: Creativity is also a muscle that can be trained, and we can practice that by exploring playful ways to solve problems.<sup>7</sup>
- Process-oriented: we're here for the process, where our efforts and experiments may not be present in the final outcome.
- Versatile: This program is your portable playground. We like to keep things open and flexible, so you can bring your own coaches and exercises with you and train wherever you go.

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<sup>7</sup> Csikszentmihalyi and Getzels refer to "problem finding" through open-ended or not-well structured problems as a way to cultivate creativity (Pringle, 2020).

**3. Strategy:** Everyone has their own take on what it means to make, and we'd love to see what you bring to the table!

If you get stuck and need somewhere to start, we suggest you to try out Brandt and Eagleman's strategies of bending, breaking, and blending (2017):

- Bending: to remodel the source by altering an existing prototype (ibid., p. 58, 73).
- Breaking: to take something apart and create something new out of the fragments (ibid., p.74).
- Blending: to “combine two or more sources in novel ways” (ibid., 91).

**4. Training:** The key components that make up this program: an exercise, a coach, and a log. The best part: it's DIY (or DIWO)! You can customize it in a way that best suits your pace and preference, and source and assemble its parts as you wish:

1. **Choose an exercise:** This can be any type of activity, at any intensity level.
2. **Choose a coach:** This is an object that you already have around you or have access to.
3. **Choose a goal:** This can be anything you want to learn from your coach.
4. **Choose a log:** This is the homebase to record your obsessions, observations, frustrations, and discoveries in your training.

If you prefer to have guided starting points, you can follow along based on the program that I'm currently training with. Each day, you'll experience being an athlete with a different sport of focus and goal:

Exercise	Coach	Training objective
<a href="#">(Dis)Assembling</a>	Soldering Iron	Build/take apart/fix/break your own tools.
<a href="#">Drawing</a>	Pen	Observe how you interact with an unfamiliar tool.
<a href="#">Folding</a>	Paper	Modify an existing tool that's not working for you to fit your needs.
<a href="#">Sculpting</a>	Egg,	Find your own entry point in an

	Marshmallow	activity with a high learning threshold.
<a href="#">Pushing</a>	Skateboard	Find an activity that cultivates a self-motivating, stimulating, and enjoyable way to learn.
<a href="#">Clicking/ Typing</a>	Trackpad/ Keyboard	Recreate an environment that boosts your optimal performance.

This is your moment to own it, go all out, and let your freak flag fly.

See you at the first training session!

Your Cross-Maker-in-Training Buddy

<b>Exercise</b>	(Dis)Assembling
<b>Coach</b>	Soldering Iron
<b>Assistant Coach</b>	DIY Soldering Kits/Circuits
<b>Training objective</b>	Build/take apart/fix/break your own tools.
<b>Prompts</b>	1. Put together or take apart an object. 2. Find out what you want to do next as you go.
<b>Potential application in graphic design</b>	Use “Inspect” or “View Page Source” as a way to learn how web design/development works in your own way/pace, or to understand why the dev team requests specific requirements for assets from you but doesn’t explain why.

**DIYry:**

1. **DIY soldering kits:** My way into the world of DIY electronics was through DIY soldering kits. I knew that this way of learning through buying kits would be unsustainable in the long run, especially when I had already noticed the red flags but still struggled to find a solution.

So, what happens when you fall under this category of a consumer?

- You’re an adult beginner who relates to the accessible language of kits made for kids.
- You’re curious about components and circuits that are considered to be more complex, and are limited by what the kit manufacturer decides is beginner-friendly enough.
- You can’t relate to the projects that are expected to be built with the kits, but still go through it anyway because you enjoy and learn from the building process.

Answer: you end up with projects that get piled up in a box that you don’t open again, because as much as you want to hack or circuit bend them, you don’t have the technical knowledge or resources to do so.

Below are the takeaways from my attempts to learn about electronics through DIY soldering kits that trapped me in this loop that I found myself in, and am still finding it hard to exit it:

**Junior Theremin by MadLab:** The first and most exciting and promising moment in any building process starts with an LED that lights up. Except when the LED is the only thing that lights up and everything else is broken, and most of the time, they still remain broken because you can’t find out what’s wrong. In this

case, it was a sound device that made no sound, but turned on an LED.

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**Makerbuino by Circuitmess:** In the building process of this DIY game console, checkpoints were provided in the assembly guide to make sure that I was on the right track, which I failed to pass as my screen didn't light up when it should. My initial solution was to contact the company for help, and as expected, was told to fix the soldering joints. Even so, it didn't solve the problem, and I sought out further help from the school's Interaction Station. The mystery continued until Danny van der Kleij helped me find out that the problem was actually with the drained battery all this time.

The debugging process was a whole journey in itself, but one thing to remember: always use the multimeter.

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I observed a common pattern in the kits that I worked on: they all have a sound component.<sup>8</sup> I decided that it was time to learn through the more challenging teachers, where the finished product would be something I was actually interested in and could make use of, and I found them through DIY kits specific to electronic instruments:

**Kastle v1.5 by BASTL Instruments:** The first problem that I ran into was the final step of the assembly when I had to snap the instrument casing together. Because the instrument wasn't securely snapped, it created a rocky and frustrating user experience.

It allowed me to come up with ways to not only unprofessionally and temporarily fix the instrument (for instance: using it without the front panel<sup>9</sup>, tying it with a rubber band) but also to come up with alternative, peculiar ways to interact with it, which in turn made the instrument produce sounds it might not produce if it were perfectly assembled.

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Another struggle: understanding what each cable connection does and what sound it makes. As a way to understand this, I created a static 'workbook' using basic HTML<sup>10</sup> as a way to remember what each patch does. I shared this with my peers, and that was the beginning of the Workbook.

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<sup>8</sup> I found that the haptic feedback of sound was a helpful way to learn.

<sup>9</sup> It's like the front-end of a website, but in this case, it was a challenge to navigate a tool without knowing which knob you're turning (even with it, I already found it hard to understand, so overall the confusion was intensified despite the joy of not knowing what sound to expect).

<sup>10</sup> Also as a way to learn HTML.

**DIWOry:** Steep learning curve of an instrument led to creating a collaborative learning environment which encouraged new ways of learning through learning making with others.

**1. Collaborative tool:** After sharing my ‘workbook’ mockup with my peers, Kamo (Francesco Luzzana) suggested that it could be made interactive. We ended up collaborating to create an interactive version of the [Workbook](#).

**2. Collaborative performance:** Through RE#SISTER at the Radio WORM Expanded performance with Ål Nik (Alexandra Nikolova) and Mitsa Chaida, I had the opportunity to use the instrument in the context of a jam facilitated by Ål Nik. I felt the urgency to find a way to understand and be more in one with the instrument somehow, and attempted to “tame” it by creating specific constraints of using only a select number of cables as a way to tame it. It led me to an important realization that the instrument was now controlling the user, and I discovered the urge to be able to create my own instruments.

**Soundwich by Landscape:** I received precaution about the challenge of surface mount soldering, since it’s an uncommon soldering method especially in beginner kits. As it turned out, I learned that it was actually an enjoyable process, where I recognized the similar extreme focus and attention required to solder was similar to one that I need to align pixels while designing on the screen.

**2. DIY circuits:** Meanwhile, there’re also circuits that were built in workshops:

**Sizzling Semiconductors by Ivona Vreme Moser, Nø School Nevers:** 06/08/22 - After traveling back home with this instrument, some of the components fell off from the circuit board and needed to be soldered back on. I attempted to fix this at home, where the setup of my “workbench” was on the floor in my apartment, with a soldering iron plugged to the power strip next to me. Through this attempt of repair, I discovered unexpected ways to interact with the instrument through the use of a soldering iron:

Once the component was soldered back on, the instrument somehow didn’t sound the same. I didn’t understand why, but the fact that it was half-working made it produce sounds I never heard when it was functioning normally.

When the heated iron made contact with one of the pads where the leg of a component was connected to, the instrument started producing an oscillating sound. It was as if the iron acted like a switch.

Feeling accomplished and empowered from my first attempt of repair, I turned off the power strip, only to find out that the instrument was no longer working. This was bizarre considering the instrument operates on a battery. Was it the soldering iron and the power strip that were “playing” the instrument all this time?

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**Centre for Networked Intimacy by Dasha Ilina, iMAL - The Cookery:** 24/01/23 - In this workshop, we built circuits that were meant to record sounds, but the one that I built ended up producing sounds. While it was unfortunate, I also saw it as a fortunate event because it produced a particular sound that I wouldn't know how to replicate. Even though it wasn't working as it was intended to, it's an organic result of and a reflection of the making process/the sound of a potential short circuit.

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#### Takeaways:

- There are many levels of beginners, and some beginners are already limited by what the manufacturer determines as “beginner”
- The learning experience has a lot of gaps in it. Even when you think you know that something is wrong with the circuit that you're building, you still don't really know what you're doing and what's actually happening, but that's the very thing that makes the learning process fun. It's like trying to solve a puzzle where you not only have to figure out what goes where with the pieces that were provided, but also at some point create your own pieces in your own way to solve a problem that also wasn't warned. In other words, having gaps in the learning experience is supposed to be there so that there is room for you to make discoveries.
- You can learn by trying to fix something: when you're trying to come up with solutions to a specific problem, you learn about other problems that were caused by a particular solution.
- You can learn something else by not trying to fix something: when you know that a circuit is supposed to behave in a certain way, but something went wrong in the building process and produced an unintended result, you're suddenly on a mission to find out what happened. If, while on your mission, something interesting happens, abort the initial mission.

<b>Exercise</b>	Drawing
<b>Coach</b>	Pen
<b>Assistant Coach</b>	Paper
<b>Training objective</b>	Observe how you interact with an unfamiliar tool.
<b>Prompts</b>	<ol style="list-style-type: none"> <li>1. Find a writing/drawing instrument that you're unfamiliar<sup>11</sup> with.</li> <li>2. Don't think, just draw, and don't try to interfere.</li> <li>3. Observe your gestures and choreographies and how the readjustments of your grip affects the outcome.</li> </ol>
<b>Potential application in graphic design</b>	Observe how you interact with and react to the interface of a website that your team is designing, and consider them in your mock-ups for the next front-end web design project.

**DIYry:**

1. **Pen:** The following observations took place because I had a specific preference for a pen.

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There is no such thing as a bad pen.<sup>12</sup> This realization came about as a result of this one cause: My preferred gel ink pen ran out of ink.<sup>13</sup>

This caused a cascade of effects:

1. I searched for a replacement but failed to obtain one due to product unavailability in my location.<sup>14</sup>
2. I searched for alternatives<sup>15</sup> while making peace with letting go of my preference and managed to find a new preference.
3. I realized that my initial preference was actually blocking me from discovering more suitable, accessible options out there.
4. I experimented with different variations of my new preference and noticed the differences among them.<sup>16</sup>
5. I realized that it's no longer just about the pen, but also the paper (a different element is introduced here: surface).

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<sup>11</sup> Suggestion: a pen that you hate for more exciting discoveries.

<sup>12</sup> I mentioned this to Michael, who added "there's no such thing as bad software", and I agree--every new pen can teach you something new, it's up to the user and their intention going into the learning experience.

<sup>13</sup> This is an example of when a user has a very specific preference for an instrument required to perform a specific activity.

<sup>14</sup> This also goes to show the importance of one's environment in shaping one's practice.

<sup>15</sup> Still close to home--the constraint now is at 0.03mm.

<sup>16</sup> Despite belonging to the same 'breed', they are manufactured differently, and the materiality of each element comes into play.



which naturally caused another cascade of side-effects:

1. I tested it to perform the same tasks (drawing and writing<sup>17</sup>)
2. I gained a newfound appreciation for friction (and ballpoint pen).<sup>18</sup>

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I saw a ball-point pen lying around. It was an option that had never been in my field of vision/preference.

This caused another cascade of side-effects:

1. I tested it to perform the same tasks (drawing and writing<sup>19</sup>)
2. I gained a newfound appreciation for friction (and ballpoint pen).<sup>20</sup>

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If you exercise your patience, sit with the uncomfortableness, it can teach you something about how you adapt to and learn to tame a foreign object (and yourself). This led me to find an even better option (or what actually happened was my behavior changed because of the tool, and now I've converted into a ballpoint pen user?

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Status: a dissatisfied consumer who wishes for an option that isn't available in the market. With the constraint of time, materials, and skills to create my own version, what I can do as a consumer is to use the available option, and change my own user interaction with the tool in order to produce the result that I want.

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Pen studies:

1. **The grip** of your hand on the pen: if you watch how your hand readjusts itself because it feels more (un)comfortable or the ink flows better/worse when the pen is held at a specific angle.

Another thing to note here is that an uncomfortable grip one day can become a comfortable grip in another, as every drawing session varies.

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2. **The pressure** is never consistent. Extra precision can produce a result that may not initially be seen as possible given the

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<sup>17</sup> Specific grips that change depending on task (drawing = grip type a + b, writing = grip type c)

<sup>18</sup> What is interesting and special about this type of pen is that it's both simultaneously smooth yet rough, depending on how you hold it. The key finding here is that the combination of your grip plus the ink level elicits a different persona of the instrument [flag as pivotal moment.]

<sup>19</sup> Specific grips that change depending on task (drawing = grip type a + b, writing = grip type c) [insert examples]

<sup>20</sup> What is interesting and special about this type of pen is that it's both simultaneously smooth yet rough, depending on how you hold it. The key finding here is that the combination of your grip plus the ink level elicits a different persona of the instrument [flag as pivotal moment.]

physical attributes of the object or material. Here, the user has the ability to manipulate the result through hand pressure.

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3. **The pen nib** varies with each pen. The materiality of one pen nib may be able to withstand more pressure than another, resulting in split ends (which can also produce even more interesting results).
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4. **The surface** has a direct relationship with the pen nib. Once the contact is made, the two are in constant conversation with one another. This is a nice moment for you to just eavesdrop and let them talk. What do you hear?

Sometimes the nib picks up the surface, and the two blend and become a new hybrid. You now have created a new type of pen.

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5. **The pen market** is limited. Art supply stores will tell you that the finest fine-tip pen available is 0.5, or 0.003 if you're lucky. Who decides that 0.003mm is the smallest? What do you do when you want to reach an extremity that isn't provided by the market? You adapt.

<b>Exercise</b>	Folding
<b>Coach</b>	Paper
<b>Assistant Coach</b>	Elastic String
<b>Training objective</b>	Modify an existing tool that's not working for you to fit your needs.
<b>Prompts</b>	1. Observe a process that relies on an object that you use every day but have a problem with. 2. Explore alternatives that would better facilitate this process.
<b>Potential application in graphic design</b>	Using a software in a way that's different from what it's designed to, to show that motion graphics can be created in other software too and not only in After Effects.

**DIYry:**

1. **Paper:** As I was approaching the end of my favorite notebook without a new replacement to look forward to, a new behavior emerged: I started writing on loose sheets of paper, folding and stashing them at the end of the notebook to extend its life (this was also because I didn't have access to get a replacement) (also another indicator of how product unavailability based on your location can prompt you to do certain things that actually turn out to be a better solution for you in the end).<sup>21</sup>

This section of the notebook continued to expand, so much that the collection of paper became another notebook (now as its own entity without being housed inside another "real"<sup>22</sup> notebook).

**DIWory: Paper + Elastic String:** I shared my new fascination with loose-leaf notebooks with Emma Prato, who made prototypes to try out and introduced me to a new material that I never considered using: an elastic string, commonly used with DIY jewelry.

Now, the loose-leaf can temporarily stay connected, and can grow because the flexibility of the elastic string allows for thickness customization.

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Why does my writing process have to end just because the notebook manufacturer decided so (not actually, but through the production decision of including a specific number of pages in the notebook)? Does the last page imply that you have to buy a new notebook, or is it a

<sup>21</sup> See the first entry of this section's DIWory to read about how this transformed.

<sup>22</sup> "Real" = manufactured or proper notebooks that have covers and binding.

wake up call that prompts you to pause and reflect if repeating this cycle is what you want to continue? For a change, I wanted to leave this loop.

I wanted to make my own notebooks that are liberated from the constraints of binding and covers. One that can:

- start and end as needed
- be folded into a folder or section divider
- stay temporarily fixed in one stack, then relocated to another
- join another stack or be isolated for focus...

...all of which would be impossible to do if I went for the manufactured notebook path.

From that point on, there was no going back--I found another system--one that's not user-friendly for others, but makes sense and is helpful in my learning through making process--and now I don't know if I can ever notebook the proper way again.

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I realized that this type of manufactured notebook structure not only shaped the way I was thinking but also in the way I was writing. Having the proper notebook structure forced me to write in a linear way, when the note taking process for me is nonlinear and is rather a method to process what I'm hearing through the act of writing and doodling.

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The problem you encounter while using (or approaching the end of using) something is the beginning of another discovery.

<b>Exercise</b>	Sculpting
<b>Coach</b>	Egg, Marshmallow
<b>Assistant Coach</b>	Stove, Microwave, Tableware
<b>Training objective</b>	Find your own entry point in an activity with a high learning threshold.
<b>Prompts</b>	1. Find something that you're bothered with. 2. Do something about it.
<b>Potential application in graphic design</b>	Explore creating sounds in Pure Data as a replacement to the royalty free stock music and audio you've always had to use for video ads.

**DIYry:**

1. **Egg:** While making sunny-side-up eggs, I was triggered by two things:

1. The fact that this particular type of egg requires a particular way to cook (crack it, leave it, let it cook).
2. The fact that the iOS egg emoji also reflects a particular result if you were to follow the previous way of cooking.

This caused the following responses:

1. Bothered by this egg tendency, I used the spatula to destroy the structure of the sunny-side-up egg because I wanted to see what would happen.
2. Seeing how the egg took on a strange shape as it cooked, I used the spatula to sculpt it and turned it into something else. It ended up taking the form of what looked like a flower.

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2. **Marshmallow:** It started with a video that I saw of someone who put a marshmallow in the microwave which expanded into a giant marshmallow. I was skeptical and needed to see it for myself.

It did indeed expand, and while observing this strange phenomena, I noticed an architectural yet malleable quality of the marshmallow that changed as it cooled down. With a fork that I found nearby, I sculpted it into strange objects, and again noticed that it required the same stillness and precision as if I were doing surface mount soldering.

I entered a marshmallow sculpting rabbit hole.

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**DIWOry: Marshmallow + Royal Icing + Cookie (+ Vending Machine + Origami):** I shared my marshmallow research with Chaeyoung Kim. One thing led to another, and the next thing we knew was that we joined our obsessive forces and created a stall under the name of

“Street Vendor-Publisher [Today’s Obsession(!!!): Marshmallows and Royal Icing Served on a Cookie]” at *Not Just a Fair* on April 7-9, 2023 at POST Arnhem.

We brought in our obsessions which complemented one another, and it was a way of working that was so insightful because we were constantly learning from each other by observing how we make and how we solve problems through experimental making.

One of the many learnings was the situation with the royal icing and a piping bag. Chae is an expert with this tool, and her craftsmanship with this tool was one that I couldn’t relate to. She saw my struggles and gave an advice that really stuck with me: “approach it like how you would with a drawing” and everything fell into place. I realized that I was blocked by the piping bag and needed to find an alternative. I ended up finding a solution that was closer to home, that somehow had the fine-liner quality of the 0.003 pen: a kabob stick.

<b>Exercise</b>	Pushing
<b>Coach</b>	Skateboard
<b>Assistant Coach</b>	Ramp, Sidewalk Curb, Flat Ground
<b>Training objective</b>	Find an activity that cultivates a self-motivating, stimulating, and enjoyable way to learn.
<b>Prompts</b>	1. Find an activity that you have always wanted to learn. 2. Gamify your learning experience (for example: convert the high learning threshold into levels you can “unlock”).
<b>Potential application in graphic design</b>	Learn the programming language that you’ve always been intimidated by and are curious about, but in a fun way that’s not too overwhelming to digest. Reflect on your learnings and apply them to your problem solving skills in graphic design-related problems.

**DIYry:**

1. **Skateboard:** An example of an empowering learning tool that requires constant pushing--mentally, physically, and emotionally. It forces you to be in tune internally and externally--with your body, mind<sup>23</sup>, and environment--and adapt on the go or whenever the situation calls for it.

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The moment you’re on the board, you’re already playing a game in real life. As the user, you activate it, learn from it and learn to be one with it. Learning a new trick is like unlocking a level in the game you create for yourself, a key motivator that keeps you going and looking forward to unlocking the next trick.

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You’ll find a new teacher in any environment you skate in. It could be a stick lying around to practice your ollies, a sidewalk curb nearby to practice riding off, a step to practice a nose stall, or just a flatground to practice reverts.

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While finding a place you feel safe to skate in is important for beginners, a lot of the learning also happens when you change your environment. At the same time, practicing with the same obstacles will really help with your muscle memory where you just do it without doubting yourself, so it’s helpful to mix it up.

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When you skateboard, you can choose your environment and assess which terrain or obstacle would be most suitable for your level. The flat

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<sup>23</sup> For visualization purposes.

ground of concrete is nothing like that of a skatepark, so even the slight change in surface can also already teach you something new.

For the first time, the word obstacle has a different meaning. It's your toughest teacher, but once you learn to skate it, it's the best feeling of overcoming a challenge that never would've happened without practice. If anything, a skate obstacle is the most fun form of obstacle that you actually look forward to facing.

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You learn when to temporarily disconnect with your brain. An example of this is when you drop-in from a ramp. The moment you put your mind or attention to it, you mess up<sup>24</sup>. In this case, the best thing to do is to set an intention (you will get off this ramp), commit (look where you want to go, and countdown) and just stay on the board. As one of the skaters I've met once told me, "the safest place is your board."

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<sup>24</sup> in the same way when you think of an Adobe shortcut, and you instantly forget about it or it messes up your flow



<b>Exercise</b>	Clicking/Typing
<b>Coach</b>	Trackpad/Mouse, Keyboard
<b>Assistant Coach</b>	Figma, MediaWiki, TextEdit, GoogleDocs
<b>Training objective</b>	Recreate an environment that boosts your optimal performance.
<b>Prompts</b>	1. Observe how you work in particular environments. 2. Mimic the ones where you perform best in.
<b>Potential application in graphic design</b>	Become a versatile graphic designer who isn't dependent on Adobe and can design in any given environment.

**DIYry:**

**1. Trackpad & Keyboard:** We're now right back where we started--in an environment that's closest to home, with an exercise we're most familiar with--clicking/typing.

My learnings from this training were fundamental in supporting my research process and led me to have a better understanding of how I learn through making. The examples below are specifically related to making through the act of writing this thesis, which happened across different environments--some meant for writing, some not. This led me to the realization that what was happening throughout this process were attempts to (re)create environments that I felt safe in, related to the most,<sup>25</sup> or would be helpful in preparing me to tackle the challenge (writing):

- 1. Figma:** Creating mockups was my entry point into the writing process, and the environment that facilitated this process for me was Figma. I found it challenging to jump straight into the writing mode and needed to find my own ways to warm-up: by translating ideas into images as a way to trigger keywords and to begin writing.

Now that text was part of the equation, I was dealing with images and text and needed a structure to organize these parts. In the same way that writing needs a sequence, I found the frame-by-frame format of a storyboard to be a helpful way to imagine words as scenes on a screen.

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<sup>25</sup> This is an example where cross-making comes into play--similar to when I needed a safe space to practice skateboarding, there were key factors that enabled this mode of self-directed learning. This includes were the location (like the skateparks or spots that I'm familiar with at the obstacles that best matches my skill levels, the

It was too many things to juggle at once, as the energy was inadvertently redirected to creating a structure to support this way of writing. Since the focus had to be on the actual writing itself, it was necessary for me to consider other environments that already have existing structures.

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2. **MediaWiki:** I found my way into setting up a MediaWiki that I dedicated to this writing process. From there, I was using tables as the structure to imitate the appearance of a storyboard.

This was working until I needed to move the text and the image around, which was difficult to do with the wiki markup. The visual editing mode would've made things easier, but was unavailable at the time, so I needed another writing environment.

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3. **TextEdit:** To strip away all elements that could potentially distract me, I reached the turning point that allowed me to fully immerse in just the text without worrying about the details: TextEdit's Plain Text mode.

This allowed me to freely write and to just get the words out and be descriptive without relying on images and structures. For the first time, it made me realize that mocking up can also be done through words, with descriptive languages that can also be playful.

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4. **Google Docs:** Along with the pressure of meeting deadlines, I needed a reliable, one-stop kind of environment that can help lessen the load of technicalities required in formatting, printing, sharing. I also felt the need to put the structure back on as a way to keep things organized and needed a solution that can solve all of these problems, so I turned to Google Docs.

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When I experienced my first ever moment of writing flow in TextEdit, I somehow made the association that I can write better with the monospaced font that came with TextEdit's Plain Text Mode. It became my safe space to write, and I gained the confidence to write within that environment.

When I transferred the writing process to Google Docs, I was stuck again. There was one obvious change: I was using a sans-serif font.

This font switch was like a jolt to the system. To get back into the flow of writing, I had to mimic the TextEdit experience by choosing the closest-looking monospaced font.

I was able to write again.

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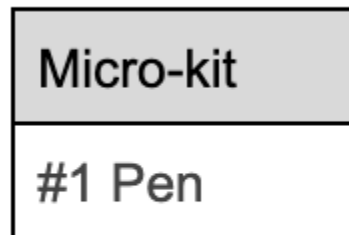
Even so, the writing obstacles persisted. I constantly felt lost in my own writing--even with the help of ⌘ F--and needed a way to

way to reintroduce a visual element to help bring in a structure<sup>26</sup>, to see the bigger picture of the writing in a visual way, and most importantly, to continue writing.

The tables made a return--they were what I needed to help structure my thoughts.

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It started with a micro table I created to suggest the idea of a micro-kit.



Micro-kit
#1 Pen

**In this micro-kit, we'll explore: the pen.**

*Screenshot from earlier thesis draft.*

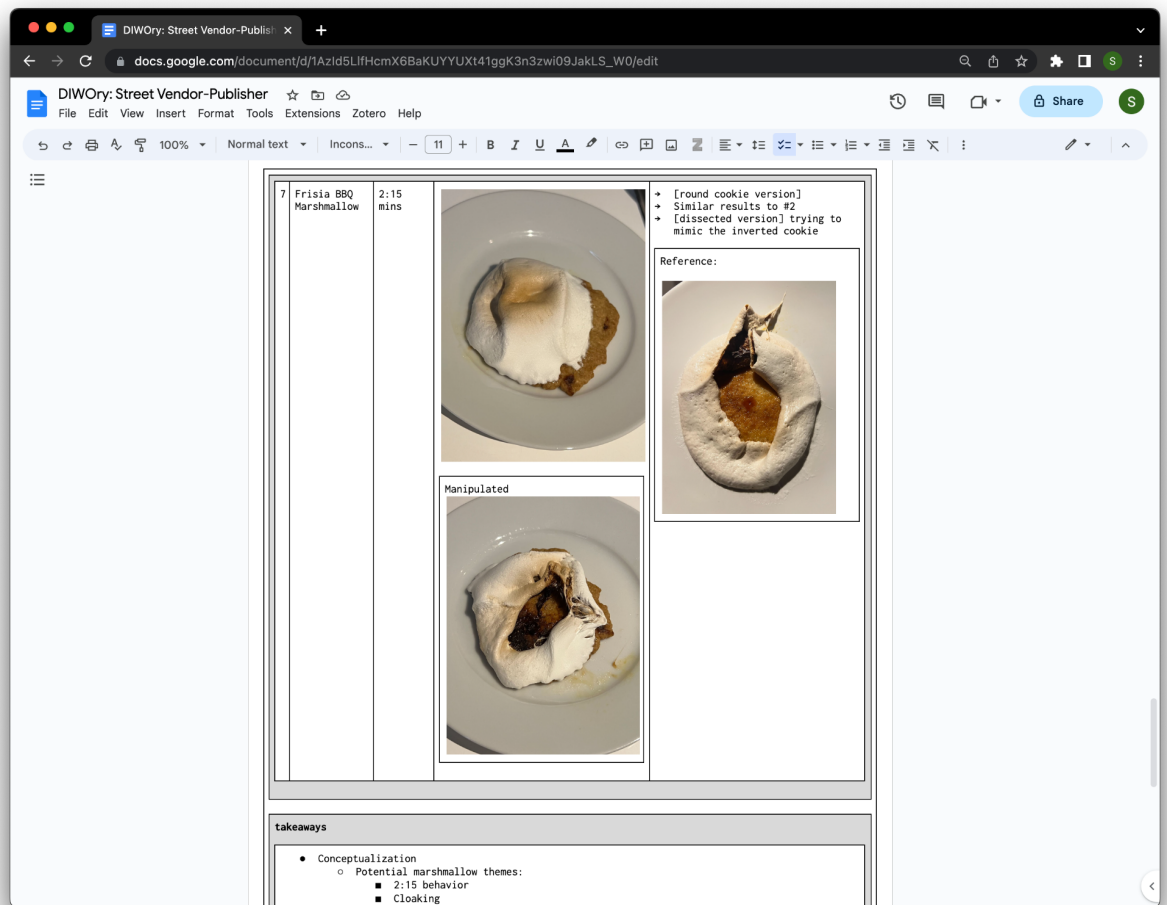
Through this simple feature of tables, I recognized another potential: through resizing, indents, and nesting, Google Docs proved to be a tool that was capable of creating mockups.

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I tested this out with the DIYry I was taking in parallel with the writing process at the time:

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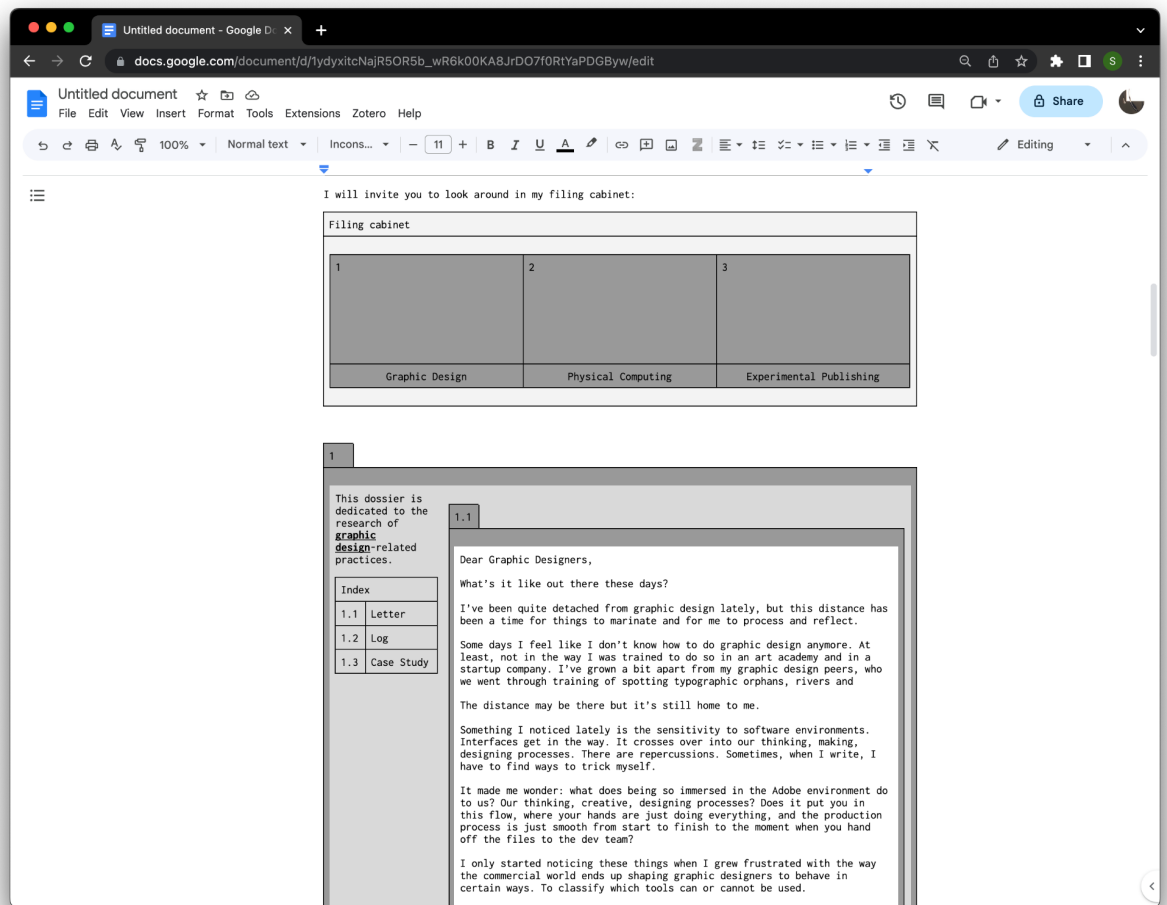
<sup>26</sup> Even the spacing and indents would do.



*Screenshot of DIWOry: Street Vendor-Publisher*

Writing blockages happen all the time, and this time, it was because I was overwhelmed with the different types of content that I was dealing with. I felt the need to create or simulate a visual environment that could help me stay organized while also continuing to write.

The solution: folders and filing cabinets.



### *Screenshot of previous thesis draft*

As you can already see, the mock-ups are not a part of this final text, as they were used as thinking and writing tools.

### Learnings:

- The combination of textual and graphic elements affect the overall visual information processing and the affected making/writing processes.
- Problem: visual sensitivity; solution: environment mimicry through visual structure, implied (spacing, indentation, tables) or mocked-up.
- Frustration led to play, which became the means to make.
- Everyday technology + vernacular languages = accessible starting point.
- Mass or industry-standard tools don't always have to be dismissed just because they're cloud-based or closed-source. Not everyone has the

technical skills to readily use an open-source tool, to develop their own versions, or for some, the privilege to use or even learn about certain tools in their practice, especially when their main source of income relies on a job that only allows closed-source ones. When any tool comes with a high learning threshold, it's helpful to use ones that are closest and most relatable to us as a starting point, see how that goes, and take it from there.

Dear Cross-Maker,

Congratulations on completing your training!

Thank you for your company, and I hope that you can take something away from this program.

Cross-making is a way to go outside your area of focus and comfort zone--to take calculated risks but still have a stable foundation or home to ground you or to come back to. By learning how things work outside our areas of focus, we discover alternative paths that can fork and merge as we go, while we train different muscles that we won't get to use if we stay fixed within our specialized path. It's a way to gain insight about our sport of focus, and to learn how it can influence your tendencies and behaviors when you take on other activities.

To wrap up, I'll share with you what I took away from the program:

<b>Exercise</b>	<b>Training Objective</b>	<b>Training Outcome</b>
(Dis)Assembling	Build/take apart/fix/break your own tools.	Discovering the key learning moments are when things break that lead to new discoveries.
Drawing	Observe how you interact with an unfamiliar tool.	Discovering a new behavior that emerges through using a new tool.
Folding	Modify an existing tool that's not working for you to fit your needs.	Discovering a way to create tools that support specific thinking and making processes.
Sculpting	Find your own entry point in an activity with a high learning threshold.	Discovering alternative ways to repurpose tools in an unconventional but accessible and relatable way.
Pushing	Find an activity that cultivates a self-motivating, stimulating, and enjoyable way to learn.	Discovering that struggle and play complement each other and facilitate growth.
Clicking/Typing	Recreate an environment that boosts your optimal performance.	Discovering a way to support a preferred learning style even in environments that aren't designed for it.

Other takeaways I discovered in the process:

- Plateaus are meant to be there to facilitate growth and breakthroughs--otherwise, what is actually there to break through?
- Observing our patterns and behaviors from being frustrated with a tool is a way to recognize your own way of learning and doing things.
- It's not always just about the tool itself and what can be made with it, but also how we use it.
- Despite the expeditions and escapes away from home, it ultimately comes back to graphic design. I'll even admit that there's always a bittersweet feeling of home whenever I press ⌘ ⌘ S in an Adobe software<sup>27</sup>.

Celebrate your discoveries, keep making, and don't forget to take your rest days!

Your Cross-Maker Buddy

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<sup>27</sup> Save for Web.



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**Colophon:**

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XPUB is a two year Master of Arts in Fine Art and Design that focuses on the intents, means and consequences of making things public and creating publics in the age of post-digital networks. <https://xpub.nl>

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