

Precarity.

My father passed away three hours into 2021; right in the midst of the quarantine era. There are a plethora of events that can affect the way I conduct myself — but this is by far one of the most influential. It stripped away most of the motivations that fueled my drive to continue pushing for more and left me feeling helpless for the first time since I was a child. The resolve I had carefully crafted and refined over the course of my entire life up to that point was shattered.

I was lost.

Opportunity.

When I was fourteen, I had been accepted to attend the Illinois Mathematics and Science Academy (IMSA) — a boarding school with a STEM specialization. I possessed an insatiable hunger for knowledge. I wanted to know all there is, and I had finally found an institution offering to aid me in my quest. The focus on math and science acutely appealed to my interests, and I was eager to be challenged in these fields.

The “Mathematical Investigations” and “Scientific Inquiries” course series were promoted as the flagship programs of the academy. They utilized a technique known as problem-based learning as their primary means of instruction. Our curriculum consisted primarily of collaboration on problems assigned in class. Through consideration and discussion, we would build an understanding from the ground up. Initially, this was frustrating as I had never been explicitly tasked with solving a problem through pure diligence. This approach fundamentally altered my outlook on what it means to learn; I had always been eager to increase my knowledge, but problem-based learning showed me that my desire can be freely fulfilled should I choose to invest the time and energy.

Capability.

Integrating problem-based learning into my mechanism for understanding ‘unlocked’ what I deemed myself capable of. Consider the difference in internal representations of concepts taught through each approach. Standard learning creates mental schema based on “what” something is. Problem-based learning focuses on the “why” something is, forcing students to bridge the gap of “why” to “what” themselves. For simplistic concepts, often the “what” is enough to provide the “why” implicitly; however, for those with more difficulty it may fall short. Standard learning’s efficacy does not scale proportionately with complexity, but problem-based learning does. Therefore, this methodology can effectively be applied to any concept. It may not allow me to learn rocket science overnight, but it will minimize the likelihood of getting stuck when attempting to.

The key to succeeding with topics of extensive difficulty is to modularize it into an interconnected series of smaller, more digestible components. The schema for the holistic idea is represented as a set of these smaller understandings. While this is most necessary when working

on diverse problems of large or scaling complexity, there is an impressive side effect of modularizing as many conceptions as possible.

Breaking a simple concept into its parts pushes the ‘fundamentals’ layer of understanding one tier lower. Oftentimes, this is represented abstractly; perhaps as a logical principle or conditional. The resulting benefit is the minimization of having to break down topics with high complexity. Rather than reducing two seemingly unrelated concepts to their parts uniquely, fundamental abstraction implies re-usability of parallel core concepts. These abstractions are invoked with increasing ease as they are recognized in other concepts, especially those actively being understood. Each application of an abstraction outside of its initial scope creates a new thread of intuition, essentially binding a new trigger to the underlying idea.

Over time this process requires lessening active effort, becoming more of a background process. There are moments I recognize its effects, such as equating two concepts with otherwise irrelevant parent topics. This leaves me with a feeling of competence that promotes two effects. It allows me to continue to raise my self-expectations and simultaneously strengthens my resolve.

Tenacity.

I played soccer growing up, and I learned some valuable life lessons through my participation. I loved to play soccer, but I hated to compete in a real game. I was a very anxious child, and I would try every excuse in the book to convince my parents to let me stay home. Each time they would deny my requests using the same phrase:

“You made a commitment; you better see it through!”

My late father, especially, had always stressed the importance of seeing through my commitments, regardless of circumstance. If I wasn’t bleeding, unconscious, or dead then I was expected to live up to my word across all domains of life. On the day I was leaving for IMSA, I experienced the same sensations as if it were game-day. While I didn’t attempt excuses as I had in the past I found myself experiencing immense internal conflict. This voice in my head was screaming at me to stop what I was doing, or something very bad would happen. Flashes of rationality argued back asserting that their claims were unfounded. They went back and forth for what seemed like forever, until eventually I snapped out of it to see my Dad looking at me quizzically.

My poker face was not readily trained at that age, and he had seen my distress clearly. He initially tried affirmations, but to no avail. I couldn’t shake this feeling like I was about to make a decision that I would never be able to undo. I weakly voiced my concerns in different words, basically rejecting the affirmations without evidence. Understanding the anxious nature of my protests he tried a different approach. He looked at me and reiterated the aforementioned phrase that implies that this commitment was non-negotiable.

I know now that feeling is not one to run from — it is a mechanism designed to validate

ambitious decisions. Ambition is not a bad thing; however, it can cloud judgment if let reign unchecked. In my eyes, there is a constant balance between ambition and care required for success. This relationship is the groundwork for resolve; the ambition provides implicit motivation while the care refines it into a specific pursuit. It is then persisted through investment and progression; in other words, through seizing opportunities and increasing my capabilities.

Intrepidity.

At my lowest point following my Dad's passing, I found myself with more questions than answers — something I hadn't experienced since before I had started on my theory of fundamental abstraction. With nowhere left to turn, I retreated inwards to my own psyche and searched day and night for a spark — something to remind myself of who I was and why I had bothered taking the journey I had up to this point. It took some time, but I found it within the same phrase that had saved me from myself once before. I was reminded that when I make a commitment, following through on it is not a choice. On that day, I vowed to never stop trying; I would pursue success in whatever form it may take until I am no longer able. This is my commitment to myself and my Dad; one that can never be broken until the end of time.

I was found.