**Why Failure?**

**Introduction**

Thomas Edison tried and failed nearly 2,000 times to develop the carbonized cotton-thread filament for the incandescent light bulb. And when asked about it, he said "I didn't fail; I found out 2,000 ways how not to make a light bulb," but he only needed one way to make it work. (The movie National Treasure)

To begin, one of the best conversations I’ve ever had was with a random co-worker. Still to this day it is the only time I’ve talked to him. It had many topics including: life, meaning, relationships, education, technology, efficentinty. But the topic that most stuck with me was failure. He stated that “you learn something by failing at it. Imagine you pick up a rock for the first time and skip it, it doesn’t happen.” We talked about the book/movie, *the sword and the stone*. The main point being that the wizard, Merlin, lives life in reverse. He experiences time backwards. Comparatively we imagined what it would be like to perform a task perfectly, without ever knowing what it was beforehand, followed by a slow decline of losing the ability entirely. Maybe completely unrelated, how did King Arther pull the sword from the stone when no-one else could when he needed it to defend himself? Destiny/Fate? Or has Merlin trained him into unlocking complete disregard for failure? This one conversation has fueled my exploration regarding learning.

**STUDIES**

A study done by Mark Rober, a NASA Engineer, consisted of 50,000 people attempting a simple computer programming puzzle. The object of the puzzle was to get your car across the maze by arranging code blocks that represent typical computer programing operations, such as if-else statements and while loops. Once participants thought they had a good code, they would hit run, and the car would move through a maze based on the commands you had in the program. The participants were told that the study was created to prove that anyone from any background could learn to code, but the truth was the study randomly served up two slightly different versions of the puzzle. In one version, if the participant hit ‘Run’ and they weren’t successful, they didn’t lose any of the 200 starting points. And it showed the message “That didn’t work. Please try again.” However, in the other version, if they hit ‘Run’ and they weren’t successful, it showed this slightly different message “That didn’t work. You lost 5 points. You now have 195 points. Please try again.” That was the only difference between the two versions. That minor difference is crucial. The study concludes that for those who were penalized for failed attempts, their success rate was around 52%. For those who were not penalized their success rate was 68%. Those who were not penalized had a 16% higher success rate. The study also concludes that for those who were penalized for failed attempts, the average attempts to solve were 5 attempts. For those who were not penalized the average attempts to solve were 12 attempts. Thoses who were not penalized took more than double the attempts of those who were penalized. As a result they saw more success and therefore learned more. Therefore, the trick to learning more and having more success is finding the right way to frame the learning process; a way where the learner is not concerned with failure, but uses it to their advantage.

In the review “Strategies for Learning from Failure” it looks towards how modern day society (particularly companies) views failure and how improvements can be made starting with the blame game. In most places: households, organizations, and cultures. Everyone learns at some point that admitting failure means taking the blame. This is why so few organizations and institutions have shifted. For now, the rewards of learning from failure are yet to be fully realized. The many executives interviewed admit to being torn on the concept of failure. How can they respond constructively to failures without giving an anything-goes attitude? If people aren’t blamed for failures, what will ensure that they try as hard as possible to do their best work? This concern is based on a false assumption. In actuality, a culture that makes it safe to admit a report on failure can exist with higher standards for performance and here is why. Not all failures are created equal. A better understanding of failure’s causes and contexts is an effective strategy for learning from failure. Mistakes fall into three categories: preventable, complexity-related, and intelligent. The type can be considered ‘bad.’ With proper training and support, anyone should be able to succeed consistently. A large number of failures are due to uncertainty of the system. A hospital emergency for example is always changing and can be vastly complex, therefore small process failures are inevitable. To consider them bad is not only a bad understanding of how complex systems work: it is counterproductive. Intelligent failures can be considered “good,” because they provide valuable new knowledge that can help growth. Discovering new drugs for example can be thought of as testing over and over again slightly changing experimentations. “Trial and error” is a common term but is misleading because “error” implies that there was a “right” outcome in the first place. It is more of learning through failure which experiments work and which do not. But the knowledge gained is a success in itself.

In conclusion, modern day society should look towards embracing ”Intelligent failures.” These systems will benefit. In more of these learning processes there should be encouragement to fail.

Work Cited

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