

The benevolent companionship of failure

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Here are some brief thoughts on the topic of failure, inspired by discussions with students, my reading on the matter, and my own experience.

In pursuing science I am continually reminded that failure comes in many forms: failure to correctly conceptualize a problem; failure to make progress in solving a problem for want of insight or skills; failure to heed Solzhenitsyn's "rule of the last inch"; overlooking ideas that merited examination; making stupid mistakes; failure to collect key data as revealed in retrospect; failure to effectively communicate an idea; and so on. Indeed, Failure is a steadfast companion who has a real knack for finding us. But here's the thing. Failure's companionship is benevolent — to be embraced — reminding us that the humility of our bruises offers a position of strength from which to reset, make things right, and spend more time with our other pal, Success.

To be clear, failure and the accompanying bruises at a personal level are a real and inevitable element of doing science, and I prefer to not avoid the word failure nor the concept of failure. To reiterate the key point of the brief statement above: "Failure's companionship is benevolent — to be embraced..." Then there is the essay by Maryam Zaringhalam, "Failure in science is frequent and inevitable — and we should talk more about it":

<https://blogs.scientificamerican.com/guest-blog/failure-in-science-is-frequent-and-inevitable-and-we-should-talk-more-about-it/>

This includes a key statement, that "a scientist's own personal relationship to failure evolves uniquely." It also includes a reference to the book, "Failure: Why Science is So Successful," by Stuart Firestein. A collection of excerpts from this book re-titled, "Why Scientists Need To Fail Better," is here:

<https://nautil.us/issue/30/identity/why-scientists-need-to-fail-better>

These excerpts include a rather interesting perspective:

"Failing better meant eschewing success when, or because, he [Samuel Beckett] already knew how to achieve it... Failing better meant discovering his ignorance, where his mysteries still reside... Try again, To Fail Better. It is this unordinary meaning of failure that I suggest scientists should embrace... Failing better means looking beyond the obvious, beyond what you know and beyond what you know how to do. Failing better happens when we ask questions, when we doubt results, when we allow ourselves to be immersed in uncertainty."

And here is Emily Dreyfuss's take inspired by Erika Hamden's 2019 TED talk on the matter:

<https://www.wired.com/story/scientists-need-more-failure-talk/>

Here is Eileen Parkes's perspective entitled, "Scientific progress is built on failure":

https://www.nature.com/articles/d41586-019-00107-y?utm_medium=affiliate&utm_source=commission_junction&utm_campaign=3_nsn6445_deeplink_PID100095187&utm_content=deeplink

Here is an interesting discussion on MPR, "The importance of failure in science,"

<https://www.mprnews.org/story/2015/04/17/bcst-friday-roundtable-failure>

in which the guests discuss the related essay by Martin Schwartz, "The importance of stupidity in scientific research" (<https://jcs.biologists.org/content/121/11/1771>), as well as what folks think of when using the word "failure." And of course failure is a key element of the philosophy of science pertaining to hypotheses and explanations. For example the site:

<https://iep.utm.edu/pop-sci/>

is focused on Karl Popper, but includes his views on the role of failure in elements of the general endeavor of doing science.