

Failure Fiction - Why to empower failure culture in science?

Mafalda Sandrini & Kata Katz

Let's have a journey to a scientific world where there is no failure, no mistakes, so there is no need for a failure culture at all. Science fiction shows us how it is done. Hari Sheldon, psychohistorian; he knows how to save civilization. He has a plan and knows it all. In Isaac Asimov's Foundation - Trilogy scientists can save the wisdom of the known world, beware the citizens of the galactic empire from loss of its knowledge and so from total disaster. It is tempting to reach a point of prediction where you can avoid disasters, where a failure becomes a mere fiction.



Fonte: Wix (2022)

The world strives for knowledge and flawlessness and for sure uncertainty can be frightening. Environmental disasters, social unrest, diseases of all kinds are terrifying and human imagination has no limits by exploring the horrors of the unknown. Through decades of mystery solving we arrived at a point of modern knowledge building where through algorithms, empiric data analysis and experiments we have foresight in different areas known to humankind. Through these expertise scientist and theorists made the expedition to unflawed system to discover:

Hunting for the abstract principles of organization and an organized life, cybernetics was supposed to be introducing unprecedented opportunities to regulate, anticipate, and feed all unwelcome effects back into its loops. It also exposed the weaknesses of all attempts to predict and control. Cybernetic systems enjoy a dynamic, interactive relation with their environment which allows them to feed into and respond to it.[...] `No system is closed. The outside always seeps in . . . ` Systems cannot stop interacting with the world which lies outside of themselves, otherwise they would not be dynamic or alive. By the same token, it is precisely these engagements which ensure that homeostasis, perfect balance, or equilibrium, is only ever an ideal. Neither animals nor machines work according to such principles. (Plant, 1997).

The world is built to fail. This does not happen because of a punishment of some higher entity or because humans are too dumb to see and to understand; it happens because systems interact, they live. Failure and success are seen as oppositions as uncertainty to assurance, although failure and success are better seen as bricks of knowledge building, as uncertainty can be seen as assurance of a future where anything is possible creating the magic of the unknown. These beliefs helped those scientists, whose works were more or less ignored for decades, to be seen as constantly failing, to become the recent success story of the academic world: inventing the mRNA Vaccine for Covid-19.



For years, though, the scientists who made the vaccines possible scrounged for money and battled public indifference. Their experiments often failed. When the work got too crushing, some of them left it behind. And yet on this unpredictable, zigzagging path, the science slowly built upon itself, squeezing knowledge from failure. (Kolata & Mueller, 2022).



Reading through Gina Kolatas and Benjamin Muellers piece it displays again how failing creates questions and the ability to adapt. It makes us realize that failing is nothing of the sort, frightening or horrific but rather a crucial aspect of a changing world. A sci-fi can be an ideal world, where is perfect balance or equilibrium but we are not in a dystopian sci-fi movie and, sadly for some, failure exists at every level of scientific work. On the one hand scientists fail experiments, or they may get unexpected results, and on the other they might fail funds and jobs applications; either way, the lack of a culture of failure permeates academic environments. Whether we have seen in other major societal domains, such as sports and the business community, that a culture of failure can benefit and empower people, it is within academia that failure most expresses itself and where at the same time it is less embraced. The path to scientific discoveries and to innovation is constituted by steps towards the unknown, where each step is a bit more successful than the previous one. To navigate the uncertainty, one has to be equipped with curiosity and resilience, and open to imagine inconceivable alternatives, which is what makes the scientific process creative.

However, the backbone of academia does not support this narrative, an example is the publication system. By publishing in academic journals, scientists communicate to peers their discoveries and the process to get some results; it is thus the main instrument professionals have to share their work in order to improve the approach of other experts in the field. Nevertheless, the phenomenon known as publication bias represent a major impediment towards researchers' ethics; indeed, it has been proven how studies displaying positive results have more possibility to get published compared to studies with negative results (Schneck, 2017). If publishing is the way scientists communicate with each other, wouldn't it be more beneficial to be aware of each other's failures, especially when there are negative results, in order to avoid useless repetition and wasting time and resources?

Diving into the domain of open science, which by definition means making data accessible to all levels of society, based on the principles of collaborativeness and



openness. Following the argument, it would be more convenient to receive constructive feedback on failed approaches rather than ideas that have been proven to work. Adopting openness as principle would also foster interdisciplinarity, allowing scientists to bring original perspectives, able to better grasp and describe modern world's complexities, instead of confine oneself into insular positions. The same can be said of the funding system: getting resources to finance ideas has become such a ferocious race that researchers must present safe proposals that will be published, resulting in the inspection of similar problems and the waste of public fundings. All of this results in an hostile environment that seriously influences researchers' mental health because of the difficulties to cope with the pressure, amount of workload, precarious working conditions, and the hierarchical academic system, affecting particularly minorities (Sandrini & Katz, 2022).

The possibility of not knowing is what makes science so much exciting and what puts it in the condition of really contributing to the world we live in; the unknown is frightening, but being able to fail creates questions and the ability to adapt, it is not something unnatural but the nature of a changing world - failing is learning to make adjustments. The lack of a culture of failure is affecting the way scientists work and live with profound implications for society at large, although it triggers innovation and progress, which should be the key part of scientific inquiries. That is why we want to invite you to reflect on the power of failure and the need for a failure culture in academia.

References

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Biographical data of the authors



*Mafalda Sandrini is a PhD student at the Freie University of Berlin under the Organizational Communication Division of the Institute of Media and Communication studies. She worked as Research Assistant at Macromedia University of Applied Sciences and as lecturer at the Kufstein University of Applied Sciences. She co-founded the project Stories of Scientific Failures, and she's the president of the Italian association INcentro - APS based in Bologna.



Kata Katz studied Philosophy, Literature and Film Studies at University of Szeged, Hungary. She is doing her doctorate at the Universität der Künste Berlin, Germany. The topic of the doctorate is "The Staging of the Self as Other/s in the Medium of Photography - Studies on the Photographic Oeuvre of Claude Cahun, Cindy Sherman and Stacey Tyrell". She is one of the co-founders of the Project Stories of Scientific Failures.

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