

SCIENCE TALK



New Publication

Board Member Ken Hallenbeck has co-authored a paper on preprinting as part of a collaboration with ASAPbio. Preprinting – the practice of uploading a completed research manuscript to a public server – was already popular in the physical sciences with ArXiv, and has gained popularity in the life sciences during the COVID pandemic as researchers sought to share data rapidly.

Ken's manuscript serves as a detailed guide on preprints, their history, and the current status of adoption, with an emphasis on how preprinting can benefit early career researchers.

"ECRs can be stuck trying to leverage a completed project into a career advance without final publication acceptance... one way to circumvent that is by preprinting," says Ken.

The topic was covered in blog posts at both [ASAPbio](https://asapbio.org) and [ecrLife](https://ecrlife.org).

Download your pre-print at:

[A Guide to Preprinting for Early Career Researchers.](#)

Connected Learning Journey

In March of 2020 we convened a community of about a dozen stakeholders across different domains of education, science, and technology for a weekend retreat.

Little did we know that the idyllic stay in the Redwoods of Scotts Valley, CA would be flipped on its head by Covid-19, and a shelter-in-place order for the state just one week before we were all scheduled to arrive. At the time, the journey to a new way to train scientists seemed interrupted. But instead of an interruption, the retreat cancellation served as a catalyst to begin a new kind of journey in an online format. That journey would continue over the following 18 months, meeting twice a month online. We called it the Connected Learning Journey - and isn't that what we're all on these days?

The Connected Learning Journey group took individual turns sharing their own life histories – one person per bi-monthly meeting. It created bonds that are unlikely to be forgotten, as we each became a bit more known by our fellow

human beings. In 18 months together, we also learned from others via visiting lectures, and took a deeper plunge with a weekend workshop/mini-retreat a few months in, facilitated by [Tobias Mayer](#) and co-lead by [Moe Choice](#), [Anna-Liisa Springham](#), and [Marian Willeke](#).

As that experiment ended, a new one began.

Four of us are now re-beginning the work of creating a new training for scientists – the original purpose of the weekend retreat so many months ago. That work is leading us into the space between western knowledge, and scientific ways, and indigenous knowledges, and ancient ways of knowing. We have written up a short description of this new work we have undertaken for the Advancing and Evaluating Societal Impact of Science's (AESIS) [May 2022 Newsletter on 'EDI \(Equality, Diversity & Inclusion\) in Impact of Science.'](#)



Image from a co-drawing group exercise at our mini-retreat, depicting some of the energies experienced by early career researchers. Note the 'Eat you up' and 'Impossibly long journey to get anything done.'

Novel Trainings for Scientists – what exists now?

To know how to transform a community, we need to meet that community where it is. In this spirit, we are exploring various training programs for the academic scientist community.

We've been keeping a finger on the pulse of trainings by noting various self-development and group communication trainings since our inception as a non-profit; we traveled to Boston to see the [EMBO lab management training program](#) in action (invited to Harvard, by Uri Alon, from its home ground in Europe), featured Steve Marsh from the Alan Alda Center for Communicating Science at our very first Science UnSummit in 2010 (see his talk [here](#)), as well as the [Carnegie Initiative on the Doctorate](#) (also featured at the 2010 Science UnSummit, [here](#)), participated in the Stanford branch of the [ELISS program](#) and learned from members, and also explored leadership training, connecting with the [Emerging Leaders in Academic Medicine](#) (ELAM) practice. We have also been paying attention to programs out of the National Science Foundation – some still in action such as [NRT](#) and some sun-setted, like [IGERT](#).

Twitter is a good source of information from various communities of scientists, with postings such as Jennifer Polk's tweet below, which lead us to a list of programs from the replies in the Twitter feed.



Ken Hallenbeck, our secretary of the board, comes from the UCSF life sciences graduate program, which has been a leader in graduate-student initiated calls for new courses and exposure to various career needs (some of their resources can be found [here](#)).

Do you have any suggestions on trainings for scientists? [Please send us a note](#).

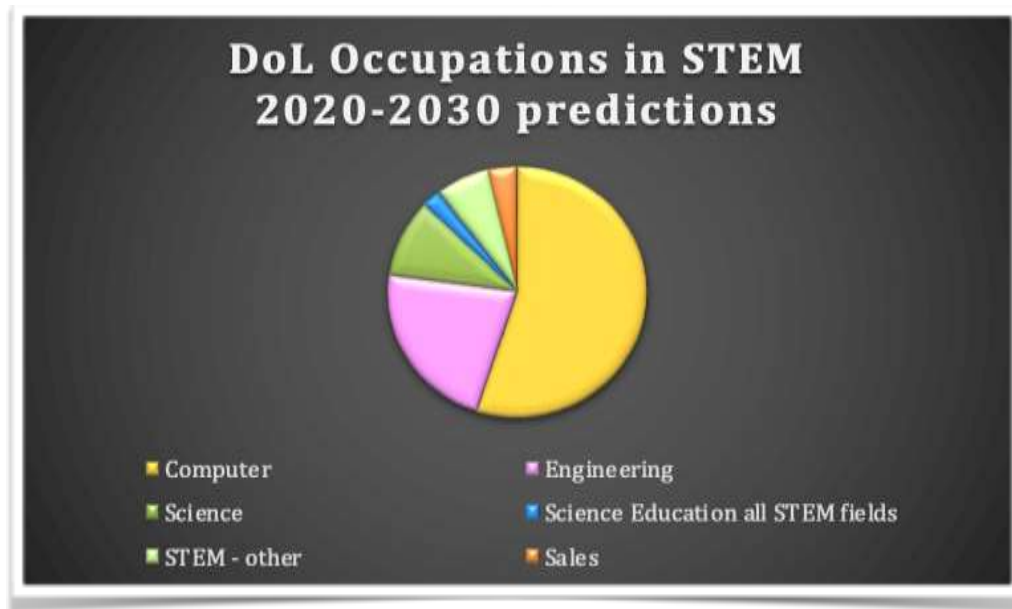


TEDCountdown

Our TEDx platform continues to engage members of our community. Our TEDCountdown 2021 event in early November featured the philosopher of science [Nicholas Maxwell](#) and the break-out work of [Louise Livingstone](#), whose Ph.D studies open up the door to how we think with more than just our brain.... the heart is involved too. Did you know the heart has many neuroreceptors, supporting rapid back-and-forth communication with the brain? Dr. Livingstone suggests that the heart is an organ of imaginal perception, which suggests a number of exciting explorations for the scientifically minded.

We are partnering with TEDxWomen Bay Area for an exciting TEDx event in the fall of 2022, and look forward to hosting our next TEDCountdown event in 2023.

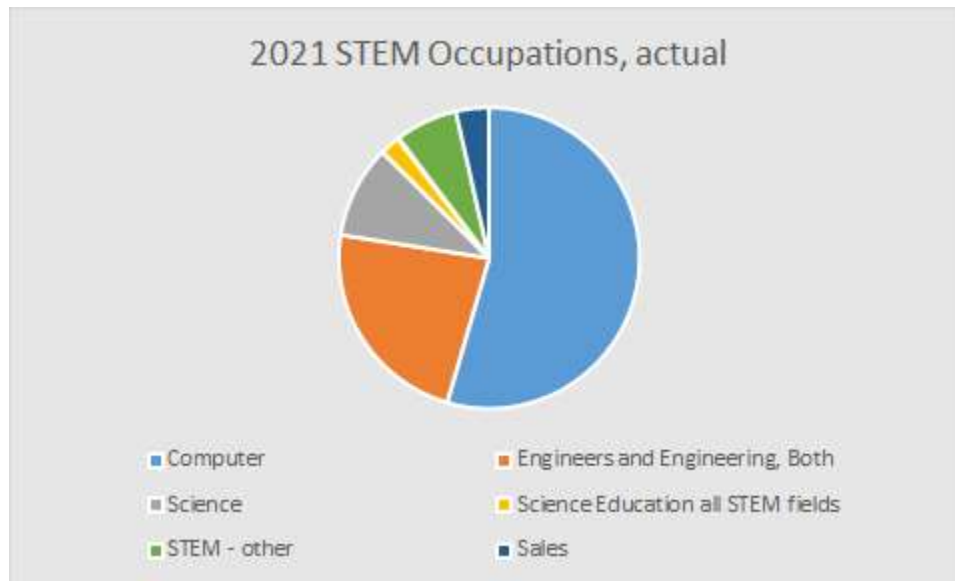
NextNow Presentation: Collective practices for transforming what it is to be a scientist



[Collective Practices for Transforming What it is to be a Scientist](#) was the topic of a NextNow Community Talk led by Kennan. At the talk she shared data from the Department of Labor (DoL) [U.S. Bureau of Labor Statistics](#) showing a projection of over 50% of STEM-related jobs will be in the computer industry between 2020 and 2030. This gives stark support to the claim that Silicon Valley and the tech industry drive the narrative that pushes STEM education as a priority for K-12 educators.

The types of jobs many imagine as 'scientist' are jobs such as 'Life Scientist' at 0.07% of STEM jobs (i.e. 7 out of 10,000 STEM jobs) or Medical Scientists at 1.32% (think big pharma – this is less than 2 out of 100 jobs in STEM, vs. over half of STEM jobs in computer occupations and systems managers).

Comparison of projected workforce needs for 2020-2030 against actual statistics from the most recent occupations data ([Job Analysis 2021](#)) shows the predictions were very accurate:



Engineering comes in at less than half this figure and science accounts for less than one in five of jobs in ‘STEM’. If you make the letters in the acronym Science, Technology, Engineering and Math match their relative job availability, the acronym looks like this:

TE
s

The list of *all* jobs under the ‘S’ for science includes the following occupations: natural sciences managers, animal scientists, soil and plant scientists, biochemists and biophysicists, microbiologists, zoologists and wildlife biologists, biological scientists, epidemiologists, medical scientists, conservation scientists, foresters,

astronomers, physicists, atmospheric and space scientists, chemists, materials scientists, environmental scientists and specialists, geoscientists, hydrologists, physical scientists, agricultural and food science technicians, biological technicians, chemical technicians, environmental science and protection technicians, forest and conservation technicians, forensic science technicians, life, physical, and social science technicians, and life scientists.

What are the beacons of education, and what are our politicians, saying when they call for more STEM workers and the education to train them?

Is it what parents and children are imagining (being part of Google, Amazon, or Facebook)? Or is it to study the environment, cell biology, astronomy (the above list, which when combined still represent only one out of 10 STEM jobs).

And why do the issues in the sciences regarding both job opportunities and how scientists are trained and supported stay stuck in place? The National Research Council and National Academies of Science reports that highlight major issues in the post-doc and life sciences 'communities' – starting in 1969 and continuing at regular intervals all the way to the current day – reflect on the SAME issues that were already visible so many generations ago.

A science blogger in 1995 put it bluntly:

“I think it is terrible to tell people to go into science when there are no jobs out there... Ph.D.'s are in bad shape when it comes to jobs. I was told that America needed Americans to go into science. So I did and it has been the most frustrating experience of my life. . . . There are days when I wished I never picked up a beaker.”

These seemingly never-ending reports clearly show the need for moral courage regarding challenges, or wicked problems, that stay stuck for over 50 years. This is one of many issues that lead to the **2018 National Academies of Science breakthrough report**.

“There have been warning signs for years that the biomedical enterprise may be calcifying—in ways that create barriers, in particular for the incoming generation of researchers.”

– Ronald J. Daniels, president of Johns Hopkins University; chair of the 2018 National Academies of Science

The Cynefin model gives interesting insights into the question ‘**why do we stay stuck in non-working systems?**’

Complex? You bet. We are also aware that jobs in the life sciences cannot be filled for love nor money right now, due to huge influxes of money during our Covid crisis. From the recruiter’s point of view, there is an under-supply of Ph.D. scientists – yet this is a supply issue that is very specific and time-boxed.

It can also be balanced against many universities that shut down all but essential research labs (typically those working on COVID-19) and a concomitant hiring freeze for new faculty during the shut-down. **The systemic flaws in the scientific community, especially those in biomedical research, have only been accentuated by the extreme challenges brought on by a world-wide pandemic.**

Let’s Talk!

Thank you for reading our Summer 2022 Newsletter! Please reach out to us if you’d like more information on any of our programs and initiatives.

Email [Kennan Salinero](mailto:kennan@reimagine-science.org).