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Upending the Hard Sciences | FIAT LUX DISCUSSION

On the Power of Storytelling and Logics to Affect Scientific Progress

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This panel saw a lively discussion around the merits of storytelling in modern society, as well as how the sciences and medical field could improve with regard to how they present ideas and communicate with others outside of their fields. The topics ranged from favorite pieces of fiction to discussions about the importance of dystopian stories and included helpful insights as to how best to tell a story.

Introduction

This discussion is a part of a five-part Fiat Lux¹ at UCLA entitled “Upending the Hard Sciences.” The goal of this class is to bring together people in fields that normally would not interact with each other with the goal of opening conversations between the humanities and sciences so as to improve them both. This specific panel discussed the importance of storytelling in the scientific field and beyond and included panelists Dr. Paul Weiss and Ariel Hart in addition to our moderator, Sergio Carbajo, an accomplished teacher at UCLA.

Dr. Paul Weiss (he/him) is a nanoscientist and professor of chemistry, materials science, and biomaterial engineering at UCLA. His studies focus on the nanoscopic world and atomic resolution. He has won several awards and is the founding editor-in-chief of *ACS Nano*. He has also been a science advisor on television shows, movies, and games.

Ariel Hart (they/them) is a Ph.D. student from Pasadena. They have a master's in health and are currently a Ph.D. candidate in sociology. They are an anti-racist community organizer focusing on supporting black trans feminism.

Dr. Sergio Carbajo (he/him) is an assistant professor at UCLA Electrical and Computer Engineering, an associate professor at UCLA Physics and Astronomy Department, and a visiting professor in Stanford University's Photon Science Division at SLAC National Accelerator Laboratory. He is also currently an equity, diversity, and inclusion officer at UCLA.

Discussion

Carbajo - What forms of storytelling do you find to be the most effective?

Weiss - Well, I think it's important to know your audience, and really try to connect with them. Figure out where these connections are, and also know your situation. You don't talk the same way during dinner as you do during a meeting. Scientists used to be told just to show data, but that isn't enough in communication. There are multiple dimensions of storytelling that can help you get your point across.

Hart - I need to bring up some crucial points regarding untold but important stories: *What am I going to do with the time I have? What are the stories that I feel aren't being heard in the space that they should be?* The pregnancy mortality crisis plaguing the African American population² is an example of an untold story that should be told. In academic settings, there is a clear, linear story. But this isn't what people are used to, they can't relate it to their everyday lives. Messiness is important because the real world is messy.

Carbajo - Let's talk about the perception of the speed of science as presented by the media.

Weiss - Scientists can write about their aspirations and hopes when conducting research, rather than only publishing once their findings have been finalized.

Carbajo - Sometimes, the template mediates how you want to tell the story. Is there any way to get around this?

Hart - This question speaks to an impetus to work with certain media. Especially in LA, there's a desire to get to a point where you've figured it out. Especially in science, what's lauded is that

'we've made a discovery,' but that's reductive. It masks the fact that our health and well-being and ways of life aren't always changed by scientific progress directly. For example, Kindred Space in LA is a group dedicated to combating racism in healthcare. While they do important work, it often isn't seen as "progress" in the typical scientific sense. Types of reports and breakthroughs that get a stamp of approval often must fit a certain time frame. We have to ask ourselves: "Progress for whom?"

Carbajo - Can fiction be used to tell the truth?

Hart - Fiction is very powerful. Octavia has been a huge source of the practice of imagination. Imagination isn't often seen as a technology, but it is. *Black Women Writers at Work*² reveals true struggles represented through fiction. Fiction also played a big role in abolition. The imagination of what could be was, and is, powerful. Fiction, and art in general, is a way of building the future.

Carbajo - And present.

Weiss - Fiction can be both inspirational and cautionary. Simple solutions are often better, and it's important to emphasize the importance of conciseness when communicating an idea.

Carbajo - What are some of your favorite fiction pieces?

Hart - *The Unkindness of Ghosts*³ by River Solomon. It's Afrofuturist, set in a world where young women are working to create an artificial sun. Its themes include environmental concerns regarding pollution as well as discrimination against marginalized communities.

Weiss - *The Book of Salt*⁴. It follows a young man through life.

Open Question Portion - the panel opened up for students to ask questions.

Student 1 - Do you think dystopian novels actually make an impact in their readers' minds?

Hart - *The Hunger Games*⁵ has concerningly high amounts of parallels to life today. There is a gap between what we *want* to be done and what is actually done. There's a gap between education and practice; i.e. having discussions about medical racism without making actual changes can be harmful.

Carbajo - "Dystopian for whom" is a question, and it's important to recognize that.

Weiss - Dystopias can serve as warnings. When we see disaster, people's writing will be able to amplify that, and then people will make decisions based on what they read.

Student 2 - How do you use storytelling in education?

Weiss - I try to tell my classes that we're trying to memorize as little as possible, and instead to learn to work on our intuition. Education is constructivism. Build on what people already know. More basic knowledge leads to better memory and creates sustainable knowledge.

It's interesting to discuss the merits of improv in scientific discussions. In particular, I helped run a science communication workshop engaging scientists from many fields who came together to "yes, and..." their way through their findings.

Hart - Qualitative research is all about stories. There is always a case study. I believe them to be one of the best ways to connect science to humanity.

Student 3 - The medical field feels like a separate world. Is there any way to merge it back with the rest of the world?

Hart - That's a problem with the structure of medicine itself. We have a lot of folks in medical school who have to push for more time with patients, and better ways to meet their needs. Doctors are typically limited to only fifteen-minute visits with each patient, and medical workers are pushing to find better ways to connect folks and meet their needs. It's a real structural problem. It's impossible to handle every patient well when you're overworked. We need to value other allied health professionals and figure out ways to have enough face-time with patients to understand the full picture.

Weiss - There are structural problems we must look at as well.

Hart - Exactly. We must expand our definition of what medicine is. Structural change is long overdue.

Student 4 - I have a question about ChatGPT. It can write scripts and replace advertising. What can we do to help AI and humans coexist?

Weiss - AI can reinforce a lot of disparities, so we need to find ways to work with it.

Hart - Yeah, that's a really important question. While I haven't used ChatGPT yet, I've seen the trend where people use it to make art. This led to pushback by artists, who feel that AI is making them less and less valued by society. In general, this goes back to the question of what we incentivize in society.

Carbajo - That's really the shame of it. Not just with technology, but with how we live our lives and set goals. We are very outcome-oriented, which harms us because the process is what teaches you things.

Student 5 - Do you have any suggestions to be effective as a storyteller?

Hart - I find that it's always good to practice communicating in simple terms. I use a lot of analogies. Pictures, auditors, and activities for people to do. It's important not to be confined to one way of communicating.

Weiss - I like that idea. It's often the case that the most simple version and the right analogies bring you back to your community. They help connect with people well.

Carbajo - Storytelling is a constant practice.

Conclusions

The ultimate message of this discussion is that storytelling is a powerful tool in all fields and that people should learn to be effective communicators so as to help advance their causes through

the persuasive power of good storytelling. It's a constant practice, and its mode will vary depending on who your audience is. Stories can be effective tools to picture positive change or to warn of the dangerous consequences of our actions. Altogether, stories are powerful, and this panel did an excellent job of bringing up the ways stories are used and how to use them better.

Acknowledgments

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Notes and references

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