Open Scientist Handbook • OSH

Finite games and infinite science: what's the difference?

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The distinction between playing with an infinite mindset and playing with a finite game mindset allows us to unpack how a scientist might bring an infinite mindset to “actual science:” to all those finite games of power and scarce resources scientists play today in the academy. This handbook is all about changing cultures in the academy. Some of these changes are steps forward into new opportunities, others are steps back into the core of how science was done before the recent neoconservative managers arrived on campus. Let’s look at two personas: one, a die-hard finite game player, and the other, a scientist deep into infinite play.

The finite-game player takes on the role of “The Scientist”

Below are some signs you might be playing science with a finite-game mindset.

- The role of “The Scientist” is just a role. You are free to throw this aside at any time. You always have this freedom. At some point you forgot this fact.
- By forgetting you create a necessity to this role in your life: not for science, however, but for being The Scientist.
- Entering grad school on a fellowship, you identified avenues of influence you could tap into: you picked a famous scholar to be your committee chair and selected a hot research topic, instead of one from your own interests.
- You had three papers published by the time you completed your PhD. At least one of these used text “borrowed” from a colleague.
- Your old committee chair had an inside track to a funding agency that you learned about and cultivated as a post-doc.
- You jumped into an entry tenure-track position at a different university when your first research proposal was funded, taking your funding with you.
- At annual meetings of your learned society, you work the publisher booths to find a sympathetic editor at a high-prestige journal.
- You push your funded research team of grad students, post-docs, and research staff to make discoveries, or hack the data, to fit the needs of the field’s top impact-factor journal.
- You ignore those students who don’t perform to your demands, and especially self-funded graduate students, who should realize they don’t belong.
- You shift your lab’s research focus in response to the funder’s new five year strategic plan.
- When you take on peer review assignments, you are particularly harsh on any work that intersects your own but doesn’t cite you, while you soaked up any useful information about their research methods and findings.
- You leverage your funded research to minimize your teaching load, and you weasel the chair into handing over your undergrad survey class to adjuncts.
- You use the same textbook for your upper division class that you had as an undergrad.
- You grade easy to avoid hassles with undergrads.
- Your graduate methods seminar class promotes your own methods, and critiques others.
- The platform of your early career wins became a launching pad to grab career advantage over your peers. You search for other early-career winners, and avoid those who aren’t.
- You constantly eye openings for jobs at higher ranked universities. You make sure you schmooze their department heavy-weights at learned society meetings.

- You worm your way into volunteer leadership jobs at your learned society, hoping to fast-track recognition.
- You sit on a couple of major campus-wide strategy committees, instead of curricular or other social committees.
- Your chancellor gives you opportunities to speak at campus events, where you highlight the research findings you've maneuvered to be most glamorous.
- You mold a social media persona around popular science issues.
- You craft a high H-index by having your grad students write review articles, which you attach your name to as first author.
- You haven't done fully original research or used a new methodology in five years.
- You carefully hoard your lab's data, and only publish in journals that do not require open data.
- You evaluate your colleagues as winners or losers, and steer clear of the latter.
- You talk about meritocracy in the academy, and believe that's why you got tenure.
- You laugh off talk of "work-life balance." Your work is your life.
- You fit fully into the role of "The Scientist." As it colonizes your future, the role of "The Scientist" becomes everything you are and ever wanted. But then you realize you haven't yet been elected a fellow of your learned society. You worry that you haven't spent enough time cultivating connections society board members.
- You've never reflected on how your need to harvest your cumulative advantage impacted the quality of your science outputs, nor the career costs of the grad-students you've abandoned because they didn't follow your lead. You never stopped to count the dreams you killed along the way.
- Because you feel you must play The Scientist continually, you are unable to play infinite science. There is no joy in your work. There is a constant fear that your research results will be proven illegitimate.

A few of the the above activities might be pursued as a finite game by a scientist with an infinite mindset (See: [Learning infinite science play](#)). Every scientist is confronted by an academy infested by conflicts of interest and internally validated perverse incentives. As open science works to change the culture, scientists must still forge their careers while knowing that what they should be doing is not getting done: "Caught up in being neoliberal subjects who operate within the terms of dominant discourses does not suit academics very well. It runs counter to intellectual work. It places us in the impossible situation of existing in a context where what we know we should do is scoffed at as a romantic dream, a fantasy, an indulgence of the past—a love like Othello's of Desdemona" (Davies 2005).

For every finite-game science player who “wins,” dozens more need to “lose.” Scarcity in the system demands this. “Losers” have their careers side-tracked at some point. Their dissertations do not result in high-impact journal articles. Their post-doc opportunities (if available) become dead-ends. The funding agency denies their last-chance research proposal. They migrate away from research institutions to other jobs in and out of academia. The enthusiasm and hope they brought with them as students no longer sustains the energy they need to compete in the finite games of science. They go off and do other work. This is one reason why science loses every time finite-game science player wins.

B) The infinite player does science and plays with the role of “The Scientist.”

“It took a flight across the equator, a perilous crossing of the Andes and three days down the river in a dugout canoe to bring me to the heart of the rain forest....There is no word but awe for the biological excess of that place, the profusion of life, vivid and complex beyond our grasp. At every turn of a leaf, there are mysteries. There are life forms here that occur nowhere else on the planet and intricate relationships evolved over eons. You might take care not to step on them” (Kimmerer 2003).

Freedom of thought is a fundamental academic freedom. Because science is always shared, this first freedom includes freedom of speech. Freedom is central to infinite play, where boundaries and horizons, rules and roles, histories and futures are all in flux. Freedom of thought is the infinite-minded scientist’s chief weapon against the silence of nature. Like water, science flows against nature and finds the low spots where new knowledge lurks. Freedom interrupts scientific rigor and intention with the serendipitous discovery.

The infinite player is fully aware that a finite academy game she agrees to play carries a role she admits only to others. She is never “The Scientist” even when she plays one. She does science. She wears the white coat. She shares her findings, her data, her methods, her ideas. She teaches classes that open up infinite play to her students. She talks about awe and about doubt, about method and precision, and how doing science is something more than doing anything else; and it is more, because she plays with/in the infinite. And when her corner of nature’s mysteries remains silent over months and years, she persists. She knows the playing will last when she is gone.

There are finite games in which she has zero interest (to the annoyance of her Chair). She sees no point in crafting a “sexy” P-hacked paper for a high-impact journal. At conferences, she spends most of her time on conversation with students at their posters, or with a few colleagues who occupy the same corner of nature as does she. Chancellors and deans fail to recruit her to campus committees. She risks tenure by focusing on her teaching and her idea of research, on her students and their needs, and on the infinite play that fills her mind day and night. If she must leave this university, she will seek out a college somewhere, with the help of her ex-students, and continue to play.

Still, the innovative thrust of her experiments, the transparent rigor of her methods, the quality of her data (which she freely shares) and the unexpected results these reveal keep getting noticed. Despite her inattention to them, her metrics are stellar. In her tenure path, she is a “maverick” and a “connector:” her career is intentionally boundaryless (Dowd and Kaplan 2005). Her generosity is widespread, and well known. She simply lets go of the science goods that are most important to her, knowing that others will remember, and send her new ideas to try out. She is a giver, a genius-maker:

“In *Multipliers*, former Oracle executive Liz Wiseman distinguishes between geniuses and genius makers. Geniuses tend to be takers: to promote their own interests, they ‘drain intelligence, energy, and capability’ from others. Genius makers tend to be givers: they use their intelligence to amplify the smarts and capabilities’ of other people, Wiseman writes, such that ‘lightbulbs go off over people’s heads, ideas flow, and problems get solved’” (Grant 2013).

She was denied tenure at her university for ignoring many of the hoops through which she was expected to jump; and immediately hired with tenure at a different university, on the weight and the promise of her research, and the stories about her teaching and mentoring, volunteered from her ex-students. She commonly refuses awards and honors; she calls them distractions.

Even the awe and joy of infinite play can be easily forgotten; scientists can get lost when they play *only* finite games with scientific methods and organizational power. These finite games pull their logics from other finite games outside of the academy. These logics tear the academy away from the freedoms that science needs to pursue infinite play. The more that the academy is trapped into finite games, the less it gains through open sharing and new opportunities for collaboration and innovation.

The Just Cause(s) of Open Science

“In life, unlike chess, the game continues after checkmate” (Isaac Asimov).

Open science exists to return the everyday life of scientists to infinite play, to find paths to justice, and to support teaching and research opportunities for scientists everywhere on the planet, in any open institution that will house their work. Open science builds academy commons (plural) where scientists can govern themselves and their resources, maintain and care for their goods and each other, provision their work, and build an abundant future for infinite science across the globe.

Infinite play requires and rewards, demands and builds, encourages and exercises practical wisdom inside science. This type of caring, pragmatic wisdom can carry a scientist, a science team, a laboratory, a school, a university, an agency: any all academy organizations, toward open science, where sharing and caring are not reserved for losers. Where there are no winners, only players. And that is the whole point.

Bibliography: Open Scientist Handbook References