Open Scientist Handbook • OSH

Joy, Fun, and Love in Open Science

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How much joy do you get from your research?

“...the love he really lived for was knowing.

That thrill of first discovery returned a handful of times the next twenty years, in diminished forms. He pushed himself forward on the pleasure of first: first place, first to lay eyes on, firsts the hearts of his peer reviewers. But he wanted more than simple primacy. First was just a sporting bagatelle. To look on a thing had been true since the start of creation but never grasped until you made it so: no euphoria available to the human brain could match it. Cleaner than drugs, broader and more powerful than sex—Huxley’s “divine dipsomania.” Anyone who tasted it once would spend the rest of his life trying for more.

Science fit the very folds of Tom Kurten’s brain. Its exuberance tempered the tedium of daily lab work, kept him alert, overrode fatigue, and rendered risks trivial. And the goal of scientific exuberance, like the goal of life, which it helped to propel, was to replicate itself (Powers 2009).”

Open science is so much more than open access

“Science functions best when scientists are motivated by the joy of discovery and a desire to improve society rather than by wealth, recognition, and professional standing. In spite of current pressures, it is perhaps remarkable that many scientists continue to engage in selfless activities such as teaching and reviewing, decline to publish work that doesn’t meet stringent standards for quality and importance, freely share reagents and knowledge without worrying about who gets the credit, and take genuine pleasure in supporting the efforts of other investigators. Such individuals should be recognized and emulated” (Casadevall and Fang 2012).

“Numbers have many charms, unseen by vulgar eyes, and only discovered to the unwearied and respectful sons of Art. Sweet joy may arise from such contemplations.” Charles Babbage circa 1825,

quoting French Mathematician Élie de Joncourt, circa 1735 (Gleick 2011).

“Making a better, more sustainable institution, in other words, requires us to move away from quantified metrics for meritorious production — in fact to step off the Fordist production line that forever asks us to do *more* — and instead to think in a humane fashion about ways that we can do *better*. Better often in fact requires slowing down, talking with our colleagues and our communities, and most importantly, listening to what others have to say. *Better* requires engagement, connection, sharing, in ways that *more* nearly always encourages us to rush past. Turning from *more* to *better* goes against some of the ingrained ways of working we’ve adopted, but that turn can help us access the pleasures — indeed, the joys — of our work that life on the production line has required us to push aside” ([Fitzpatrick](#), April 26, 2020; Accessed September 2, 2020).

Start here with joy

While writing this handbook, it became clear that, as a life-way—as a career that is also an avocation—science today needs to rekindle the internal emotional goods that have long been wellsprings for creativity and innovation across the lifetime of the scientist. Science is the hardest thing humans can do, in terms of the challenges it faces, and the obstacles to resolve these. There is no shortage of hard work, long hours, and disappointments available to the scientist. These have been with science since the time of Francis Bacon. Science is serious. We can take that as given. Science faces many of the hardest and most meaningful questions humans have managed to ask themselves and the universe. What is the origin of life? What is matter made from? Why must we die as we do? But science was never *only* “serious” in its practice. Scientists get to learn infinite play in their job, a pursuit that opens up to awe (Keltner and Haidt 2003) and wonder—and joy—at any time. “Joy has a component, if not of morality, then at least of seriousness. It signifies a happiness which is a serious business. And it seems to me the wholly appropriate name for the sudden passionate happiness which the natural world can occasionally trigger in us, which may well be the most serious business of all” (McCarthy 2015). Yes, science is serious, but so too is joy.

“Too much of the OA [open access] discussion is grim, utilitarian, and problem-oriented. We should complement it with discussion that is joyful, curious, and opportunity-oriented. Serious problems don’t rule out beautiful opportunities, and one of the most beautiful opportunities facing OA is that certain strategic actions will solve serious problems and seize beautiful opportunities at the same time.” Peter Suber (2012)

Open science will almost necessarily be more joy-full than the science you’ve been doing. Some of this comes from its inherent generosity, and the gratitude you feel at the generosity of others when they share openly the science findings that help your research. “Gratitude is a powerful emotion. We declare that we are satisfied. We can drop our search for more; in this moment, we have everything we need. Out of that fullness, other emotions

naturally bubble up. We tend to get in touch with joy and generosity, and we treat others with love and care” (Laloux 2014).

Open science enables infinite play. You will be challenged there when nature stays silent to your questions, but you will also find joy. “There can be occasions when we suddenly and involuntarily find ourselves loving the natural world with a startling intensity, in a burst of emotion which we may not fully understand, and the only word that seems to me to be appropriate for this feeling is joy” (McCarthy 2015) (See also: [Popova](#); Accessed May 31, 2020).

Certainly, there is some little joy in those finite games that scientists play today. However, this type of joy is kept scarce through the logic of “science as a race.” This logic informs scientific research as a series of races, each one ending in the form of some achievement that can be owned by the scientist, and in extension by their home organization. “The contradiction of finite play is that the players desire to bring play to an end for themselves” (Carse 1987). In order to win, and to feel this variety of joy, they need to hold up *their* discovery—as a distinct, independent object—for public notice. They seek an audience, and arenas—certain journals, learned society prizes, funding agencies, campus administrators—where their personal winning can be acknowledged with some special notice or title. “If finite players acquire titles from winning their games, we must say of infinite players that they have nothing but their names” (ibid). The winner’s joy is amplified by the number of losers around them. They have succeeded where so many others failed. But the joy of these distinctions is momentary. The next race has already begun.

“The revelation of suddenly seeing what I was blind to only moments before is a sublime experience for me. I can revisit those moments and still feel the surge of expansion. The boundaries between my world and the world of another being get pushed back with sudden clarity an experience both humbling and joyful” (Kimmerer 2003).

Joy in abundance

The joy of open science is like the joy of a choir while creating the music they sing together. This joy is fully shared, as a form of [collective virtuosity](#) (Accessed June 9, 2020). The better the singers' voices blend into a single voice, the finer their song sounds. Should the choir grow larger, the joy only multiplies. Should the song grow longer, the joy only expands. "The paradox of infinite play is that the players desire to continue the play in others. The paradox is precisely that they play only when others go on with the game. Infinite players play best when they become least necessary to the continuation of play. It is for this reason they play as mortals. The joyfulness of infinite play, its laughter, lies in learning to start something we cannot finish" (Carse 1987). Open science is a song with a choir anyone is welcome to join (with some real training behind them), a song that doesn't end when any one voice becomes silent.

"Specifically, joy may be thought of as delight that arises in response to a source of meaning or value in life. Delight describes a pleasant emotion, conveying the positive valence of joy. Connecting this to a matter of meaning or value differentiates joy from other positive emotions, such as happiness, a more general case in response to anything pleasant; amusement, in response to something entertaining; gratitude, in response to receiving something; pride, in response to accomplishing something; interest, in response to engaging in something, etc." (Krumrei-Mancuso 2019).

Under certain circumstances, doing science opens up opportunities—events—for a delight that comes from connecting to nature. "A lot of the time, when you do Math, you're stuck. But you feel privileged to work with it. You have a feeling of transcendence and feel like you've been part of something really meaningful." Akshay Venkatesh ([ICM 2018](#); Accessed June 1, 2020). Science organizations can be governed to encourage, enable, and celebrate these events.

More importantly, individual scientists need to develop their capacity for joy, a capacity they might have had as a child only to lose during their schooling. Like practical wisdom ([The practical wisdom of doing science](#)), you can get better at finding moments of joy in your research and teaching. Of course, going to work in an open-science culture organization does not mean you simply step up to a day of joy. The labors of science are infinite. The disappointments and the setbacks are legendary. All the joys offered in science are earned. "The joy of science lies in pondering the magnificent and seeking answers to the unknown. Indeed, Stephen Hawking's advice to 'Look up at the stars and not down at your feet ... Be curious' ... is not far from what other scientists have noticed drives many scientific discoveries: the experience of awe" (McPhetres 2019).

One of the goals for culture change in open science needs to be an acknowledgement of the role of intrinsic motivations, and a cultural devaluing of the external, often perverse (Binswanger 2015), incentives that create so many conflicts of interest today in science. "We call for a cultural change in which scientists rediscover what drew them to science in the first place. In the end, it is not the number of high-impact-factor papers, prizes, or grant dollars that matters most, but the joys of discovery and the innumerable contributions both

large and small that one makes through contact with other scientists”(Casadevall and Fang 2012). Like other psychosocial skills, joy increases across time when you work at it. Fun, however, can erupt at any moment when two or more scientists get into a conversation (or a “cerebration”(Asimov; Accessed May 1, 2020)) about their research.

Are you having fun yet?

“For best purposes [for creativity in a group], there should be a feeling of informality. Joviality, the use of first names, joking, relaxed kidding are, I think, of the essence—not in themselves, but because they encourage a willingness to be involved in the folly of creativeness. For this purpose I think a meeting in someone’s home or over a dinner table at some restaurant is perhaps more useful than one in a conference room” (Asimov; Accessed June 8, 2020).

Science play is serious play

There is a whole literature on “play” and its valuable role in creativity and imagination from childhood to the board room. Linder, Roos, and Victor ([Working Paper](#) 2001; Accessed June 4, 2020) do a good job of surveying this literature. Their Institute proposed “serious play” as the foundation for strategic thinking. Thomas and Brown (2007) look more specifically at the collective knowing that multiplayer games produce, and how this might inform new theories of learning. Csikszentmihalyi’s work on autotelic, optimal experiences (what he calls “flow”) describes how play—in a wide range of environments, including the workplace—offers its own very important incentives and rewards. His 2004 [TED talk](#) is a good starting place. Caron (2017) looks at how the study of society can be based on the cultures of games, as emergent, open-ended, strategic play. Here it is helpful to not contrast “play” with “serious”. Play can be terminally serious; look at sword-play. Play

can be artistically virtuosic: as in word-play. Consider open science as full of play: data-play, theory-play, methods-play. Remember too, play is fun. That is a bonus.

Your love of science might have
started early

Open-science-culture governed organizations can intentionally, and reflexively promote events where creative folly—the play of intellection—is more likely to occur on a more regular basis. When they abandon the finite games of metrics-turned-into-goals, these organizations will find new spaces and time for serious play. Fun is guaranteed as a first-order outcome, together with more creative imagination, an increase of shared knowing, and the likelihood of better problem solving. Asimov (above) noted that bosses and funders might not fully appreciate the level of fun involved in events of group creativity. He suggested that participants be given “sinecure” tasks—to write a white paper, say, or a final report—something perfunctory to keep the funders happy and the bosses complacent. Never confuse these tasks with the real work, and the serious play of scientific conversations.

It’s clear from the literature that talking about play and fun in the workplace surfaces a tension between two models of academic work. The first model tells us (and our funders) that work needs to be endured. And for it to be endurable in a meaningful fashion, it must be difficult and arduous. No fun allowed. Neoliberal managerial practices serve here to ratchet up demands and metrics to be sure that next year, or next week, you will need to work harder than today. So, buckle up and buckle down, because somewhere else, others are working harder than you are, and you will be left behind, unfunded, and tenure-less.

The second model tells us that each scientist has—through many years of learning and striving—earned the right to join the infinite play of science, which has no clock, and runs on shared knowing and ubiquitous doubt. This work is no less arduous. However, there is also laughter and joy, and a love for the process of doing science and for the object of study. “A love of knowledge, the most valuable resource in Universities, is being squandered by policies designed for the market place” (Rowland 2008). Open science culture change can move your team and your organization from the first model to the second one. This Handbook will help.

Cerebrations are the events of science

You don't love science because it's fun. You have fun doing what you love. It's called science.

“The lesson here for Open Scholarship may be that an inherent personal love of science and discovery must be nourished..., and communities that can affect the principles of Open Scholarship must also be cultivated around this” (Tennant, et al. 2020 [A tale of two 'opens'](https://doi.org/10.31235/osf.io/2kxq8); DOI:10.31235/osf.io/2kxq8.).

In the end, you cannot talk about open science without adding how this enables new/old practices that show the love of science and the love of nature through science. And you can't really talk about changing cultures in your workplace without asking the question: does this workplace nurture the love that its workers might find, the joy they can feel and share, and the fun they can generate through their work and with their time here? As Roland (2008) notes: “[I]t is somewhat ironic if academics consider a term such as a love of knowledge—or

‘intellectual love’—should not be taken seriously. It is strange that a phrase such as ‘the delivery of learning outcomes’ is taken to be serious and meaningful, but not ‘inspiring a love of learning’. Has talk of such love no place in the language in which academics write about their work?”

One of the cultural aspects of open science that deserves more conversation is the replacement of external incentives with those internal incentives that have long been a part of science, but which have been demoted and shunted in the pursuit of finite games and the logic of competition. The love of science is a lifetime affair. It probably started for you in childhood. “As researchers we sometimes need to be reminded that we are contributing to an astonishing human effort, which transcends an individual’s lifetime (Frith 2019). It is a big “why” for those career choices you’ve made. It also promotes trustful, caring relationships with other scientists. There is no room for: “I love science, it’s scientists I can’t stand” (See: [Kindness, Culture, and Caring](#)). A love of science also opens up an avenue for “slow science.” “We need to engage at every level to accomplish a reconceptualization of university time. Creating spaces for new modes of scholarship and intentional communities helps us to move from individually-focused solutions to solutions with potential to create institutional and structural changes that nourish and support slow scholarship” (Mountz et al. 2015).

It is time to slow down and smell the science

“Science needs time to think. Science needs time to read, and time to fail. Science does not always know what it might be at right now. Science develops unsteadily, with jerky moves and unpredictable leaps forward—at the same time, however, it creeps about on a very slow time scale, for which there must be room and to which justice must be done.”

From [The Slow Science Manifesto](#) (2010).

Sometimes slow is just about right

Open science is not *only* slow science, indeed, open science looks to accelerate knowledge sharing, but it does foster slow science, through conversations and collegiality, as a part of the future of how science is done. “This slowing down represents both a commitment to good scholarship, teaching, and service and a collective feminist ethics of care that challenges the accelerated time and elitism of the neoliberal university” (Mountz, et al. 2015).

Open science is all about collaboration: “[I]n order for collaboration to work well, it emerges locally in conversations between people... ..Collaboration is about thinking together. And undertaken in that spirit, collaboration can allow us to challenge neoliberal models of higher education and the remasculinization of the academy” (Berg and Seeber 2016).

What if each scientist is limited to one published paper a year (with unlimited preprints, blogs, etc.)? What if each scientist can only receive three external grants in their career—and their home organization was responsible to work with funders and the public to increase the general, sustained, in-house support for science research? What if teaching the love of science were a large part of career advancement? The cultures of open science will foster emergent practices that can move the academy away from the current the neoliberal university model.

“Will Rogers used to say that people don’t so much fall in love as step in it. I think the same may often be said of science. Even those who know from their third birthday that they will be a scientist can’t tell you

precisely how they got to be doing exactly what they are doing. They try this or that, run into a professor or a graduate student who takes him or her under their wing and infects them with their mystery, and that's it" (Firestein 2012).

Coda: I thought science was all about rationality

You could argue that “rationality” is central to instrumentalist practices in science and dominates the explanatory prose of science reports. Useful it is, we will all admit, within its domain. No disagreement here. All of the arguments for precision and intellectual rigor, for “doing the math,” and being grounded in the methods: these are a given. There is no anti-rational basis nor bias in open science. The real issue is where rationality fits into the larger practice of science. What are the limits of instrumentalism? Where does imagination and serendipity show up? When do explanations fail? “Indeed, the exclusive attachment to purpose, consistency and rationality may be inappropriate in organizational situations that actually require reason’s ‘non-rational’ cousins, including impulse, intuition and lived bodily experience” (Jacobs and Statler ,2004. [Working Paper](#); Accessed June 8, 2020). You can be coldly rational with your research strategies, logical with your data, rigorous with your methods and still be kind, caring, and ego-free with your team.

Scientists regularly probe beyond what they can currently explain, hoping to extend the limits of explainability. As Carse reminds us, there are other forms of writing better suited to some of these unknown domains: “Explanations settle issues, showing that matters must end as they have. Narratives raise issues, showing that matters do not end as they must but as they do. Explanation sets the need for further inquiry aside; narrative invites us to rethink what we thought we knew” (Carse 1987). In its infinite play, science goes beyond explanation and steps into narrative.

Background: descriptions of hyper-rationality in the state (and the academy) flow through “poststructuralist” social theories, and discussions about poststructuralist theories, in the late 20th Century (Harvey 1989; Bhabha 1990; Best 1991; Best and Kellner 1997). Michel Foucault’s lectures in the late 1970s (Foucault 2008) are a fountain of these descriptions. As an open scientist, you can make a quick note that you are not alone in seeking a better way to build teams, share knowledge, and collaborate with your peers. You knew this without ever reading Foucault.

Bibliography: Open Scientist Handbook References