Open Scientist Handbook • OSH

Values, freedoms and principles upon which to build new cultural practices for open science

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“Nothing captures our understanding of moral commitment better than the way Marx astutely put it: ‘These are my principles; if you don’t like them, I’ve got others,’ (That’s Groucho Marx, in case you didn’t know)” (Benkler 2011).

“Whether you’re designing a business model, a website, or a legal statute, values are not an afterthought. Fairness is not something you attend to after the practical decisions about how to improve efficiency or innovation or productivity have been made. Fairness is integral to effective human cooperation. We care about fairness, and when we believe that the systems we inhabit treat us fairly, we are willing to cooperate more effectively” (Benkler, *ibid*).

“Advocates describe the Open Science ideal simply as science done right, as a public good that should be practiced in connection with society and societal values. Science done right, in this context, includes considerations of social justice and international human rights. The Open Science ideal requires researchers to pay at least as much attention to scientific responsibility as to scientific freedom. Part of that responsibility is to make the scientific literature freely available to all; but Open Science is more than open access. (Holbrook 2019)”

For the open scientist, and for open-science societies and communities, statements of strategies, norms, and rules for open science are expressions of the principles, virtues, and values of open science. Before you can start to talk about open science, you and

your colleagues need to figure these out. It helps to start with a shared sense of the meanings for these concepts.

Principles, Values, and Virtues...and Freedoms

Ambiguity warning: again, these words get used in various ways. Here you will find one way to fit this all together. You might prefer other ways, but at least, here is one you can use. Let's unpack these a bit here, starting with **values**. Klammer (2017) introduces values like this: "Values are qualities of actions, goods, practices, people and social entities that people find good, beneficial, important, useful, beautiful, desirable, constructive and so forth. Values are personal in the sense that individuals experience them as such and they are social in the sense that values derive their impact from being shared among groups of people."

Values can be internal only, or shared. Individuals can value anything they wish, but shared values require cultural work to sustain. Problems arise when there are contradictions between personal and cultural values. The values you hold as an open scientist do not need to be all of your values: you have lots of other values in your life. You might be highly religious, or deeply non-religious, for example. You bring these other values with you, and they help inform the discussion over the values you choose to share in your organization.

Norms are shared values that have become universal inside the culture of your community/group. Norms inform ways of behaving that members perform without much thought, and would feel weird if they didn't do these. Norms are the basis for being able to say, "People like us (open scientists) do things like this." Norms are culturally stronger than rules within teams. When people like us behave like this, you do not need rules to support these behaviors.

Principles (here) are a subset of values that appear to be unquestionable; a kind of super-value that might also be linked to fundamental meanings and connections to the world. "Scientific principles" are variously described as either the fundamentals of the scientific method, constraints on science (such as falsifiability) or very basic observations of nature (water seeks its own level). In casual use, the term sometimes overlaps with "laws." It is time to get more precise about this term.

"Fairness" is a principle that is often articulated through values such as "equity." The "open" part of "open science" is a value that is also a principle. Other values add facets of meaning to the principle of "openness." "Open" also unpacks to contain other values: findability, accessibility, sharability, etc.. Building a list of values often reveals

common principles that they share. Being “principled” (as a person or a community) means that you are true to your principles/values. There is a lot of semantic overlap between “principles” and “norms.” Norms describe the behaviors (including attitudes) that are informed by shared principles/values.

The Open Science MOOC has a whole module on [open-science principles](#), as these have been articulated by several organizations. You can use these examples to create your own list of values/principles. But do create your own; then own these and celebrate them. In this work we point to two principles that serve to distinguish open science to non-open science: fierce equality ([Fierce Equality](#)) and demand sharing ([Demand Sharing](#)). When these become norms, they might just be called “equality” and “sharing”.

Virtues to science by

“Prudence is a virtue, as is temperance, courage and justice. These are the so-called cardinal virtues that we find in the *Nichomachean Ethics* of Aristotle. Together with the theological virtues faith, hope and love, they constitute the seven classical virtues” (Klamer 2017).

“Management is doing things right; leadership is doing the right things” (Drucker 2001).

Virtues are values that have ethical meaning for you. These are not simply good to hold/do because they make sense; they are good to hold/do because they are the right thing. Virtues are not limited to just those found in books. You can articulate your own.

You can make a virtue from any value you hold as an ethical position. For example, dietary value choices might be virtues. For example: “I would never eat meat” expresses a virtue assuming you consider this an ethical decision. In contrast, other dietary choices might be aesthetic values (“I only drink *single malt* whisky”); or they can have a medical reason (“I’m allergic to peanuts”). These are not potential virtues.

A virtue that needs a lot of work in the academy is kindness (See: [Kindness](#)). The idea that kindness might not be essential for the academy should be seen as bizarre. All learning happens through the kindness of shared knowing. The lack of kindness as a virtue has been linked to idealized hyper-masculinity (and the associated lack of ability/inclination to do emotional labor) (Schultz 2003) and hyper-competitiveness. Both of these are toxic for the academy. If your organization is ignoring or violating its virtues, you have a real problem. Shared virtues, like other shared values, can, over

time become norms in the culture of a community. People like us open scientists hold these virtues.

Open Science Freedoms

“It is our responsibility as scientists, knowing the great progress and great value of a satisfactory philosophy of ignorance, the great progress that is the fruit of freedom of thought, to proclaim the value of this freedom, to teach how doubt is not to be feared but welcomed and discussed, and to demand this freedom as our duty to all coming generations” (Feynman et al 2005)

“Academic freedom” is larger, older, and more fundamental as a principle than the movement to open science. This freedom has also been abused in places (such as autocratic governments) and for purposes (neoliberal logics) that obstruct the academy’s defense of this, its primary principle. The fundamental nature of academic freedom was written into the [*Magna Charta Universitatum*](#) on the 900th anniversary of the founding of Bologna University, and signed by more than 700 universities across the globe.

Open science is another weapon in the defense of academic freedom. The pursuit of demand sharing promotes the free flow of research objects across nations; the shepherding of any/all research within sustainable repositories; and the demand for state support to maintain and improve these resources. The pursuit of fierce equality promotes wide access to academy resources, and inclusion of research findings from all persons.

What are the freedoms that open science brings to the academy?

Along with its values and principles, its standards and norms, open science may also include certain new *freedoms* similar to those presented by the open-source software movement. (See: The Free Software Definition <<https://www.gnu.org/philosophy/free-sw.html>>; Accessed May 15, 2019).

This brings up the question: is open science also “free science” (free as in “speech” not as in “beer”)? Since the scope of open science is available for debate and to local formations, there is no universal answer to this question, but there are some ideas that might inform these formations.

One leg of open science is “open access” to research objects. [Peter Suber](#); Accessed May 15, 2019; see also Suber 2012) offers an excellent overview of this topic. He notes that the current push for open access does not *require* “universal access” in this, its

initial moment. Today, open access offers an alternative to paywalled subscription access to academy resources. When you discuss open science with others at work, you will need to decide the scope of open access your organization would like to promote. So let's explore this scope a bit. You will have your own conversations over freedoms as these are implied and supported by open science (or *libra* science).

Possible freedoms your open science endeavor can consider

- The freedom to access academy resources from anywhere. We do have the internet.
- The freedom to interrogate the methods/data/software of any research result in the system. Access is a precondition of this.
- The freedom to reuse academy resources.
- The freedom to add to the academy's corpus of research objects; subject to the rules of the repository applicable to all (e.g., provision of data).
- The freedom to copy, mine, and analyze collections of research objects.
- The freedom to be kind to one another in all activities of the academy.
- The freedom to request help and receive kindness.
- The freedom to participate equally in conversations, discussions, and online forums.
- The freedom to always choose to do the right thing now, and not delay moral action.
- The freedom to point out infractions of community rules and principles without retaliation.
- The freedom to express the joy of doing science play.

Add your own freedoms to this list. And remember that freedoms are worth fighting for, as Toni Morrison reminds us.

"There may come a time when we—students, faculty, administrators, artists, and parents—will have to fight hard for education, fight hard for uncorrupted science (not the ideological or racist science); for sound social history, apolitical anthropology (not strategies of control); for the integrity of art (not its celebrity). There may indeed come a time when universities may have to fight for the privilege of intellectual freedom" (Morrison 2019).

Use your freedoms to point toward justice

Discussions of open science as a movement toward social justice practices within science, and societal justice outcomes as a concern for science should be a prominent aspect, and an active conversation, of how you arrive at fierce equality in your open-

science organization. Grahe et al (2020) is a good starting place to pick up the concepts of justice in/through the academy.

New behaviors will lead to new attitudes: build action into your culture change process

In building or changing the culture of your organization, the first, and an ongoing, task for you and your organization is to discuss and agree upon the values you want to share. The process of culture change in your organization begins with a discussion about values, then it builds statements that support these built as strategies, norms, and rules. Then it looks at how things get done, at the practices that apply to getting to decisions and doing work, and realigns these behaviors with its shared value statements. After that, members of the organization continue to refactor how things get discussed, decided, and done, molding processes and behaviors to satisfy not just the boundaries of these values, but to express and defend their core principles. If you skipped The Work of Culture (above), you might want to take a look. Over time, these behaviors become shared norms. People like us open scientists here would not think of doing anything else. The whole process of how to do this is described below.

Bibliography: Open Scientist Handbook References