Open Scientist Handbook • OSH

Virtue and Values of Open Science

Bruce R. Caron

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Find ways to talk about open science at your meetings

“...when we institute prosocial or cooperative norms, they become self-reinforcing over time. The systems become dynamic: The more we practice cooperation, the more we believe in the virtue of being cooperative. These changes, of course, make the problem of sustaining cooperation easier” (Benkler 2011).

Strategies, norms, and rules

The open scientist carries a tool-belt of cultural practices that can help change the cultural habits for her organizations. Many of these tools are discursive: they happen when open scientists converse and discuss open science with their peers. Eventually, some of these conversations end up with decisions around statements that are meant to guide organizational actions.

Above, you were introduced to values, virtues, principles, and freedoms. What kinds of shared statements can you build in your organization to articulate these? This bit of the Handbook gives you a “grammar” for statements that should help you in your endeavor as an open science culture change agent. Statements are important, but

always remember that changing behaviors is what changes attitudes. You will also need to “walk the walk” for culture change in your organization.

You’ve often heard about strategies, norms, and rules, but you might not know which to apply in your situation. What are the differences and similarities between these? These discursive tools are all forged as mutually agreed-upon statements. To ratify the “agreed-upon” part, it helps to have a way to register agreement, some platform for governance, or a simple way to register a vote. The statements can then be delivered as shared agreements in conversations, offered in speeches, tweeted and retweeted, and discussed and reformed through further deliberations.

Shared strategies, norms, and rules announce and define how the organization’s actions match its shared values and common interests. Culture change agents can nudge their organizations to consider new strategies, norms, and rules that can promote open science by supporting new behaviors that spawn new attitudes.

A grammar for organizational norms

One helpful system you can use to know how to craft statements that become strategies, norms, or rules was devised by Elinor Ostrom (of commons governance Nobel fame) and Sue Crawford (Crawford and Ostrom 1995). This has since been expanded by other economists and social scientists. Crawford and Ostrom proposed a grammar for organizations (in analogy with a Chomskyan syntax for language) based on five descriptors. Statements about organizational strategies, norms, and rules will contain a certain selection of the following grammar:

A = Attributes of the actors to whom this institutional statement applies.

D = Deontic content of the statement, specifying which actions may, must, or must not be undertaken by the relevant actor.

I = Aim or Target denotes the action or outcome to which the action in question is to be applied.

C = Conditions under which this particular statement is deemed appropriate or relevant for application.

O = Or Else specifies the actor or actors to whom is given the responsibility of imposing sanctions on those who fail to implement the statement as intended.

(From: McGinnis 2011)

Let’s unpack these five parts of statements to show to they can be useful for most of the circumstances an open scientist might face:

A= Members of the group, or some sub-set. For example: all tenured professors in your college, all members of your professional association, all post-docs in your laboratory. Attributes are used in every strategy, norm, or rule statement, unless there is an implied “everyone.”

D= A dutiful attention to either performing a task or avoiding a task; or a permission or prohibition about the task. For example: “you must make your research data public whenever possible”; “everyone should put their published work into an open repository as soon as they can”; or, “we should boycott for-profit publishers that don’t allow open data mining of their corpus.” This is what separates rules and norms from strategies.

I= The aim or goal of the action of the statement. For example: “In order to build transparency and reproducibility, you must make your data public”; “To increase discoverability...”; or, “With a goal of pressuring them to open up their corpus...; ”

C= Conditions. Some statements apply to specific circumstances. When no condition is listed, the circumstances are, by default, universal to the group’s activities. For example, a group may create a statement (code) about proper conduct. They may have rules for on-line conduct, and different/additional rules for conduct at conferences. In terms of open science, open data statements might include privacy conditions when the data were donated by individuals. Conditions pin the statements to real-world circumstances.

O= Or else. The punishment/sanction for not following the statement. As you’ll see below, this part is what separates a rule from a norm or a strategy.

Some Statements of Open-Science Strategies

Strategies use AIC grammatical parts

What is good to remember here is that information about open science is strategic, as it informs the choices of others. A strategy means a statement about a practice. The statement may be experimental, say, a suggestion about a new technology. It may offer a good practice to follow. Such statements add to the inventory of useful information in support of open-science practices and virtues, or they refute statements made that may mischaracterize open science.

Here are some examples:

“As an open scientist, when you are asked to review an article, check to see that the article will be openly available.”

“Members of (insert name of a professional academic association) can add their publications to our open repository.”

“Tenure decisions should not use journal impact factors.”

“Take the trouble to see if there is an open alternative text book for your class subject.”

“Maintain the provenance of data, so that others can reuse this more effectively.”

Some Statements of Open-Science Norms

Note here: your organization will be crafting and modeling its own norms, and statements about these. Norm statements become real norms when they describe default behaviors (people like us open scientists do things like this), not aspirational behaviors, within a community. Of course, that requires work and time and governance to accomplish. Without real democratic governance processes to grow these, norms resemble rules laid down by those in power. Norms add the element of dutiful attention [AIC+D]. So they are strategies that are actually practiced. When spoken, they take strategy statements and add a “we....” Norms are strategies that all of us do all the time here, in this community/organization.

You can help uncover and then recode norms by opening up conversations about “the way we do things here.” Remember that the impact of these norms will rely on changing/inventing practices and processes that align with them.

Here are some examples:

“At our university, we only publish in green open-access journals.”

“Scholars in our discipline always preregister our research to improve transparency.”

“Our lab never uses journal impact factors at all, ever.”

“Every panel in our society’s conference has at least two under-represented scholars.”

“Everyone hired to teach at our college, from senior professor to new adjunct, gets a vote on every issue.”

Norms are cultural practices that become “normal behaviors” by being widely shared among a community (e.g., your college). They are the community’s vehicles for announcing “the way things are done here.” Norms can become tacit knowledge, and

can be learned through emulation, instead of instruction. When enough of a community do the same thing the same way, or talk about what they do the same way, this “way” is a norm. Norms describe common practices that express virtues (valorized cultural/social behaviors that carry ethical meaning) and shared principles (valorized value positions).

Some Statements of Open-Science Rules

Rules are like weaponized norms. Rules add the “or else” to a norm (AICD+O). While it may be easy to write the “or else” phrase, this is a more complex aspect to use in practice, since it requires that the organization has a method to enforce the sanction, and it puts the violator into a new category of attribute (e.g., as someone who may no longer be eligible for election to group leadership roles, or who is kicked out of the group entirely). It also means that others in the group may then have a new duty to act differently to the violator (e.g., not reviewing their work, not hiring them). So this statement will be connected to other statements that spell out the procedures for the sanction. Again, the “or else” clause is what separates a rule from a norm or a strategy.

Here are some examples:

“All proposers will add a data management plan to their proposal.” [Implied: “Or else your proposal will be rejected.”]

“Behave professionally. Remember that harassment and sexist, racist, or exclusionary jokes are not appropriate.” [Or else you will be asked to leave the conference.]

“We do not tolerate harassment in any form. Discriminatory language and imagery (including sexual) is not appropriate for any event venue, including talks, or any community channel such as the chatroom or mailing list.” [Or else you will be excluded from on-line participation.]

“By 2020, the final published version of articles will be made immediately Open Access (with a CC BY licence) and copyright retained by the author.” [Implied: “Or else you will not be funded.”]

Rules are valuable when used by organizations against bad actors in the academy. Codes of conduct only really work when there are consequences to violating these. (See: [The Carpentries Code of Conduct Enforcement Document](#). Accessed May 29, 2019) Rules that set behavioral boundary conditions are necessary to help re-ground a culture that has become toxic. Your organization can signal that a culture change has

happened by ruling out formerly accepted behaviors. Rules are much less valuable for announcing and enforcing good behaviors. For example, Clegg and Roland (2010) warn that rules concerning “due care” in education can interfere with the practices that carry authentic kindness.

Enforcement by leverage

The easiest way to enforce a rule is when you have economic leverage over the actors in the attribute part of the statement. At that point you may not need to create the “or else” phrase, because it is implied. A funding agency can create a rule by stipulating a task as part of applying for funding. “All proposers (this is the A statement) must (this is the D statement) submit a sustainability plan (the I statement) with their proposal (the C statement).” The O statement, “or we will not review this (favorably) for funding” is implied.

Open data efforts may push for funding agencies to enforce open data rules rather than for societies or universities to engage their members to do so. Enforcement by leverage is often viewed as easier than hosting democratic governance to manage a situation; and, yes, it is certainly less cumbersome. But rules also become social obstacles as they foster rule-bending behaviors, and cannot alter the intent of the individual scientist, nor encourage voluntary normative behaviors. Voluntary normative behaviors are informed by shared virtues and principles.

The Handbook looks to give you the tools you need to work with your colleagues and change your organization’s culture. Knowing how to fashion strategy, norms, and rules enables you to avoid creating unnecessary rules, or mistaking strategic statements for norms. You will populate these statements with the values (principles, etc.,) that you’ve already determined.

Don’t forget the narrative

Finally, you need to add some narrative framing to your statements to reveal their dynamics. Open science offers us new choices, new knowledge tools, and new ways of working together. Framing your statements as narratives invites others to join in. [John Hegel](#) (2018, Accessed September 3, 2019) notes, “a narrative is a call to action directed at the listeners, stressing the role that they can and need to play in resolving the narrative.”

Bibliography: Open Scientist Handbook References