# Beyond Open Access: understanding science's closures


Openness. There's a lot of it about. Or at least a lot of talk of it about. It's a word long-favoured by politicians when talking about science policy. It's also a policy goal which can seem hard to argue against.

But there are types of openness. Like 'freedom', 'fun' and 'excellent', it's one of those words that sounds indisputably good but can be quite malleable; applied to a range of ends. Just as we should ask freedom from what, fun for whom an excellent how, we should ask questions about the contingencies and directions of any call to openness.

If the late 1990s versions of open science were about opening up the processes of how we do and apply science for public scrutiny and discussion, then the more recent iterations tend to focus on making the outcomes of science more available. Today's ideas of an opened science can also more economic in scope; a matter of opening to business and 'free' as in the service of free trade. In the words of David Willetts we cannot 'afford' to keep research locked in ivory towers.

Something many appeals to openness share is the general assumption that it is a good thing. If policy is criticized, it is that is not open enough. Such a view obscures ways in which an idea of open might be strategically applied to particular ends, and largely ignores the ways in which closure is a very everyday part of science, often very

positively.

Rather than obsessing about openness then, we could instead focus our attention on how closure is a quite normal part of science, and consider points where science is closed in detail and on their own terms, so we might decide whether we're happy with them or not. We could also think about how closure and openness often go hand in hand; what is opened up by each closure and vice versa, so we might weigh up advantages and disadvantages in specific cases.

Here are a few of what we might call 'devices for closure', as a start for thinking about this. I'd be interested to see what others you might add. Several overlap, and in no way is this list meant to be exhaustive.

## Money

At it's simplest, paywalls and budget limits. But we can also talk about financial barriers to scientific education. Or, to put it another way, we should be aware of the 'paywall' put on being able to comprehend a science paper, not just how much it might cost to download it. We should also be aware of ways in which the power of money to open one route for research may also close down others.

## Bureaucracy

The word limits set by research funding applications are, by their nature, limiting. This is a useful limit in many ways - preventing academics from wittering on - but it is still a form of closure. Cynically, we might ask if administrators and scientists deliberately make administration processes of science policy as complex and boring as possible to stop the rest of us digging around to ask questions. We should also remain aware of the ways administrative systems can be enabling, especially in terms of assisting groups of scientists to work with each other.

## Peer review

If there is one system that puts pay to any claim that science is open, it's peer review

(academics judging the quality of each others' work either before publication or for funding). It is triage; the whole point of it is closure. Even when it is done in open – which it often isn't – the whole point of peer review is to closing down. In many ways that's its power; often a useful closure. Moreover, the common anonymity of peer review may breed a lot of bad behaviour, but it can also protect academics, especially junior ones, from wrath of those whose projects have been rejected, allowing them to be more honest. It's a good example of how some of science's closures may facilitate forms of openness.

## Discourses of scarcity

The 'we can't think about this because we don't have enough money/ there are more important things to worry about' type of argument. This varies ideologically, from Thatcherite 'TINA' (There Is No Alternative economic policy) to environmentalists citing Limits to Growth. Both are powerful and both are up for debate, especially by scientists aiming to find new ways to look at the world.

## Policies of openness

Policies of openness can, themselves, provide forms of closure. For example, auditing systems enacted for 'transparency' may focus attention on more measurable tasks at the detriment of others (e.g. publishing lots of papers instead of taking time to find new audiences for their work). Another example might be scientists retreating to hidden spaces to discuss controversial work so it does not have to be made public for, making it even less accountable. There is also the chill of panoptical transparency policies which may help discourage bad behaviour but are somewhat based on the assumption we all agree what 'good' is, limiting the sorts of dissent and experimentation which are key to many forms of scientific endeavour.

## Expressions of expertise

At its crassest, this is an 'I know better than you, young lady' performance of scientific authority to close down debate. It is easy to dismiss as snobby, but we should also acknowledge the role of expertise in the everyday running of science. The need for

prior knowledge can feel like a barrier to entry in scientific debate - and is often used as such - but it can allow people to build on previous work too. Jargon can very easily be used to limit the number of people who can be involved in a discussion, but it also offers precision in debate as well as ways to find new connections between research subjects and new parts of the world to talk about. Equally, however, science is a highly hierarchical business, and expressions of status are often used to simply close down debate to suit those in power.

## Debate

Lines like 'more research is needed' may be an appeal to keep and open mind, but can also stall policy action or even research projects. This is another example of openness providing form of closure, but I thought it was worth its own bullet point. Its focus on uncertainty is also arguably very scientific, and not something to be dismissed from science. As Oreskes and Conway argue in Merchants of Doubt, it's a way of using a core virtue of science against itself. Whatever the relative rewards and dangers of either opening or closing in a particular case, that's worth keeping in mind.

## Secrecy and control of sensitive information

Some aspects of science are kept private to protect research subjects. Also, some areas of science might be kept secret because it worries about how it might be used (e.g. debates over 'duel use') or because groups want to enact closures for economic or military reasons. Science is done in a society where we choose to have secrets. We may not agree with this, Indeed the openness of science may challenge norms of closure elsewhere (I think the web is a nice example of this). Still, a lot of science is done with forms of secrecy for military or commercial reasons. And it is still science.

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