

Design Principles for Creating the Open Scholarly Commons from Elinor Ostrom

David W. Lewis
January 2018

© 2018 David W. Lewis. This work is licensed under a [Creative Commons Attribution 4.0 International license](https://creativecommons.org/licenses/by/4.0/)

The Open Scholarly Commons

I have defined the goal of the Open Scholarly Commons this way:

What we, as the academic library community, want to create is an open scholarly commons that will be digital and distributed with colleges, universities, cultural heritage organizations, scholarly societies, foundations, and governments hosting the content created, funded, or of interest to them in repositories that would make the content openly available to the world. This community would fund and support the common infrastructure needed for discovery, access, and preservation. Collectively we would take responsibility for curating and preserving the world's scientific, scholarly, and cultural heritage thus making it discoverable and freely available to everyone in the world now and in the future. This is the vision. We need to replace the dysfunctional system we have now with one that works.¹

Stating the vision is easy. The hard part is making it happen. The transition from paper to digital and network technologies provided an opening and the technologies necessary for the reworking of the scholarly communications system. While there has been progress, it has been spotty at best. We are not where we should be and there is a danger that the scholarly communications system will be captured by commercial interest and used for private gain rather than as a public good.

The Collective Action Problem

One of the reasons this is so is that in attempting to create the open scholarly commons academic libraries, and the academy as a whole, face a collective action problem. One that we have not clearly focused on and have not overcome. John Wenzler examines this problem

using the work of economist Mancur Olson and presents an important assessment of the situation academic libraries face. As he puts it:

Economists and political scientists long have argued that it is extremely difficult to replace the unconscious coordination made possible by market transactions with the conscious coordination required for collective action. Even when everyone involved understands and desires the benefits of cooperation, it is often impossible for them to work together to achieve it... Because everyone benefits from the creation of public good regardless of whether or not they help to produce it, individuals are tempted to become “free riders” who exploit the efforts of others. Even those who have no intention of free-riding for themselves are reluctant to invest in a public good because they worry that their effort will be wasted if too many other people chose to ride for free. In small communities, it often is possible to build bonds of reciprocal trust that allow groups to achieve collective ends, but it is more challenging for larger and more distributed groups to do so.²

Wenzler argues that it is this collective action problem that has made it impossible for the academic library community to benefit from digital technologies that should make scholarly communication cheaper and more easily available to all of the people who wish to use it. Because we have not overcome the collective action problem, we face continued steep price increases from for-profit publishers who maintain monopolistic control over much of the scholarly communications system and extract monopoly rents for its use. Wenzler is frank about our prospects:

Although it is likely that university libraries could develop a more efficient system of scholarly communication if they were to redeploy their collective subscription budgets, each individual library— when it decides how to spend its own little piece of that huge pie—has little incentive to redirect its own expenditures... Unfortunately, if every librarian waits for every other librarian to make the investments necessary to develop a sustainable system of Gold OA publishing, it may never happen.³

Wenzler’s critique clearly defines the problem we face. To the extent that academic libraries act in isolation, they will inevitably act in their own narrow interest and we will not be able to create the infrastructure that will be required to support the open scholarly commons.

Elinor Ostrom and Creating Common Pool Resources

Elinor Ostrom won the Nobel Prize in Economics for her work on commons governance. Her book, *Governing the Commons: The Evolution of Institutions for Collective Action*, examines situations and institutions where commons are successful. Her work demonstrates that the collective action problem though real, can be overcome given the right circumstances, incentives, and motivations. This work can provide both hope and guidance.

Ostrom looks at a variety of common pool resources (CPRs) and develops design principles from this study. Her work was with physical systems such as forests, fisheries, or irrigation systems. These systems require mechanisms both provisioning (the work require to create and maintain the systems) and appropriation (managing how the resource is used).

The commons we are endeavoring to create is digital and networked, as such in is, as Andrew McAfee and Erik Brynjolfsson put it “free, perfect, and instant.” Once something is digitized, it’s essentially free to make an additional copy of it.

Once a digital original is created, copies are every bit as good as their digital originals. In fact, the digital copy is exactly identical to the original digital version.

Networks allow distribution of the free perfect copy from one place to another, or from one place to many, virtually immediately.⁴ This means that the open scholarly commons does not need to be concerned with appropriation. Use does not diminish the resource. Once provisioning is accomplished, that is once the resource is created and there is a mechanism for ongoing maintenance and enhancement, the commons can function. So, provisioning the open scholarly commons is what we have to accomplish. This simplifies the task, but it is still significant.

Ostrom states the challenge:

Designing and adopting new institutions to solve CPR problems are difficult tasks, no matter how homogeneous the group, how well informed the members are about the conditions of their CPR, and how deeply ingrained are generalized norms of reciprocity. Given the strong temptation to shirk, free-ride, and generally act opportunistically that usually are present when individuals face CPR problems, overcoming such problems can never be assured. No strong external pressures drive individuals toward positive solutions to such problems.⁵

Ostrom suggests that success in creating a CPR is best when the follow conditions exist:

1. Parties share a common judgement that they will be harmed if they do not adopt an alternative arrangement
2. Parties will be affected in similar ways by the proposed arrangement
3. Parties highly value the activities from the CPR, they have low discount rates
4. Parties face relatively low information, transformation, and enforcement costs
5. Parties share norms of reciprocity and trust that can be used as initial social capital
6. The group is relatively small and stable⁶

She also states, “To solve appropriation and provision problems... individuals must learn about the structure of the physical system on which they jointly rely, about their own appropriation and use patters, about the norms of behavior that are followed in a community, about the incentives they will encourage or discourage as they change rules, and about how all of these factors will cumulatively affect their net benefits and costs over time.”⁷

When we look at the current state of academic libraries and scholarly communication in light of Ostrom's work it is clear that there is much work that needs to be done. Let's take each of Ostrom's six conditions in turn.

1. Parties share a common judgement that they will be harmed if they do not adopt an alternative arrangement. This is a big plus. There is and has been for a long time an understanding that the current structure of scholarly communications is broken and that libraries and their parent institutions are being harmed as a result. We understand the system's problems and the harm that is being done. We know we should act.
2. Parties will be affected in similar ways by the proposed arrangement. This is a big minus. At the present time, there is no shared understanding of what the system we are trying to create should be. There is no roadmap. There is probably general agreement at the level of my statement at the beginning of this paper. But agreement on strategies and tactics to construct the system are not widely understood or accepted. Nor do we know what resources individual libraries are now committing to activities that support the creation of the open scholarly commons. Because we don't know what others in our community are doing there are no norms to guide behavior. Creating a general understanding on levels of contribution and developing norms is the aim of the 2.5% Commitment initiative, but this work is in its infancy.⁸ Given the diversity of the U.S. system of higher education, the U.S. academic library community as a whole will probably not be affected in similar ways by the creation of the open scholarly commons. Everyone will have access to the resource and scholars, teachers, and students everywhere will benefit, but research institutions will have different incentives from liberal arts colleges and community colleges will have different incentives from either. Different organizations will see value in contributing to different parts of the commons. Whether these contributions add up to something substantial is an open question.
3. Parties highly value the activities from the CPR, they have low discount rates. This is a plus. It is likely that the academic library community will share in highly valuing the resources once it is created. Having a low discount rate means that the future value of the resource declines slowly. Libraries by their nature have long time horizons and so our discount rates are general low in all things.
4. Parties face relatively low information, transformation, and enforcement costs. It is hard to know what the information costs will be, but it is likely that they will be relatively low as there are many existing structures to expedite them. The academic library community does though have a tendency to be overly deliberative, which increases costs. Transformation costs will be higher, but the application of digital technologies, if done effectively, means that they should not be unduly high. They are certainly affordable within existing budgets if

libraries are prepared to reallocate them. Enforcement to the extent that it exists will be largely through norms and cost should be modest.

5. Parties share norms of reciprocity and trust that can be used as initial social capital. Probably a plus. In general, academic libraries share norms of reciprocity and trust that can be used as initial social capital. Although trust is highest in small groups and in most cases the level of investment is small so the risks of trust are small.
6. The group is relatively small and stable. This is a minus. Academic libraries as a whole are a very large and diverse group. The track record for academic libraries creating large scale institutional solutions to shared problems is limited. There are many state and regional collaborations, but on a national scale over the past 75 years, OCLC, and to a lesser extent, the Center for Research Libraries and the HathiTrust are the only examples.

When we look at the conditions Ostrom sets for the successful creation of a CPR, it is hard to be overly optimistic. It may be that the scale of the threat and the need response will motivate the library community, but it will need to overcome its diversity and lack of common vision that this creates if it is to be successful.

In my view, an important first step will be to create the means to make the contributions of individual libraries transparent so that contribution norms can be developed both nationally as the 2.5% Commitment proposes, or in smaller groups of peer institutions such as ARL, the Great Western Library Alliance, or the Oberlin Group.

I do not share Wenzler's pessimism, but the work of creating the open scholarly commons will be clearly be a challenge.

Elinor Ostrom and Design Principles for Common Pool Resources

Ostrom examines a variety of successful CPRs and provides the following eight design principles for CPRs.

1. Clearly defined (clear definition of the contents of the common pool resource and effective exclusion of external un-entitled parties)
2. The appropriation and provision of common resources that are adapted to local conditions
3. Collective-choice arrangements that allow most resource appropriators to participate in the decision-making process
4. Effective monitoring by monitors who are part of or accountable to the appropriators
5. A scale of graduated sanctions for resource appropriators who violate community rules

6. Mechanisms of conflict resolution that are cheap and easy to access
7. Self-determination of the community recognized by higher-level authorities
8. In the case of larger common-pool resources, organization in the form of multiple layers of nested enterprises, with small local CPRs at the base level.⁹

Not all of Ostrom's design principles apply because, as noted above, appropriation is not a problem for the open scholarly commons. They do though help us in the task we face.

In my view, Ostrom's work suggests the following as the academic community moves to create the open scholarly commons:

1. The successful commons Ostrom evaluated are closed systems with clearly define and enforceable boundaries. The scholarly communication system is open and is governed by norms, incentives, and traditions. The governance of the open scholarly commons will be similarly constructed. The challenge will be to modify the traditions and adjust the norms and incentives to change behaviors. The institutions required for the open scholarly commons will create tools, services, and standards. Enforcement mechanisms will not generally be available as they are for the CRP institutions Ostrom studied.
2. Ostrom's work would suggest that the library community, as a whole, needs to recognize that we face a grave threat. That is the monopolization of scholarship and its use for private gain. If asked, most of us would say that this is the case, but we don't often act as if it is so. We spend large portions of our budgets in ways that support the for-profit companies that clearly put profit above the public good.
3. It is also important for academic libraries to engage the institutions they serve so that the commitment is not simply at the library level. The commitment to the open scholarly commons needs to be at the college or university level. Presidents, provosts, and the faculty need to understand what is at stake and support the path forward. Without this level of institutional support, it will be unlikely that the level of commitment for resources and sometimes difficult policy decisions that will required to create the open scholarly commons can be generated.
4. It is also important to understand that with the treat come opportunity. The technology provides tools that make the cost of entry relatively inexpensive. Disruptive innovation by small players is possible. The large commercial players have vulnerabilities that can be exploited.
5. Ostrom's work would also suggest that the academic community needs to be in general agreement about how to meet the threat we face. A generally accepted

“road map” is required. The details need not be filled in, but the general strategy needs to be broadly understood and agreed on. It is likely necessary for a strategy to be for coordination and to develop a sense of common purpose.

6. The strategy needs to create infrastructure that can serve a wide variety of the projects. It will be critical to avoid unnecessary specialization of infrastructure that wastes resources. This will require coordination at the national or international level.
7. Different groups will make different contributions to different things. We need to accept that every member of the community can participate even when contributions differ in type or scale. Elitism or closed groups will not be productive. Everyone needs to be invited to the table. What this does not mean is that there should be one large super group of libraries at the national or even international level. Ostrom’s work suggests that smaller local groups with umbrella groups above them sometimes with several layers is the most effective strategy. This tiered structure would have smaller groups of peer institutions, either type of institution or regional groups at the base. These groups are likely to have different priorities and different capacities. A national umbrella group that is inclusive and accepting of this diversity that coordinates this work and an international group above that would create a structure that could coordinate national efforts. This seems the best path forward in thinking about how the open scholarly commons will be governed. Although, given the diversity and size of the commons governed may be too strong a word.
8. We will need to develop a provisioning strategy that is made up of these nested pieces with different communities contributing to the provisioning of different resources. The communities at the base level will need to be small and be made up of institutions that are similar, that have a history of working together and therefore trust each other. In many cases, they will have the experience of shared investment, usually because of collaborative purchasing. They will need to take on projects that meet most pressing needs they face. For example, a group of community colleges might commit to creating a series of open textbooks for large enrolling courses that they all teach. A group of libraries focus on a particular discipline, for example theological libraries, might focus on resources for that discipline. The fact that smaller groups of peer organizations are working together will creating make norms around contribution easier.
9. The broad community needs to make contributions with the understanding that there will inevitably be institutions that cannot or will not contribute. These free riders will need to be accepted by those who do contribute. In the future, the scholarly reputation of institutions will be based, at least in part, by the scholarly infrastructure that they support. University presses often make the claim that their work enhances the brand of the university. This will continue to be true

going forward. At the very least, the faculty at these institutions will have somewhat better access to the infrastructure because of the support their institutions provide. These prestige incentives contribute to the effort.

10. One issue that generates contention in discussions of the open scholarly commons is what role if any should for-profit entities play.¹⁰ I would suggest that for-profit entities can participate, but only if they are prepared to abide by the principles that govern the commons. The dysfunction of the current scholarly communications system is not the result of the participation of for-profit entities, rather it is that some of the for-profit participants have taken over large segments of the sector and have been extracting monopoly rents for a long time. Tim Wu argues that consolidation and monopoly or oligarchy is an inevitable part of the cycle of information industries evolution.¹¹ To the extent we believe Wu's analysis to be true, we need to build governing principles that mitigate against this possibility. Hindawi's CEO, Paul Peters suggests, what seem to me to be a good beginning for such principles.¹² He argues for open source, open data, open integrations, and open contracts as the basis for acceptable for-profit behavior in open science. We can extend these principles to the open scholarly commons. Commons and profit are not necessarily incompatible. Individual fishermen are operating to make a profit, but they can still be part of the common fishery. What matters is that they observe the governing principles of the commons.

Final Thought

I have come to think that fixing the scholarly communications system and creating the open scholarly commons is like addressing climate change. It is a collective action problem of a similar scale. It will require changing behavior and adopting new practices that replace comfortable ways of doing the work of the academy. But as we all lead busy lives and our part in the grand scheme of things is small, the energy required to change is hard to muster. This makes getting the attention of administrators and the faculty difficult. Academic librarians, especially those who lead libraries, can though make a difference. We can advocate and reallocate resources, but unless we solve the collective action problem, unless we create and learn how to govern the open scholarly commons these individual efforts will not be sufficient. Ostrom provides good guidance. It is up to us to act on it. It is up to us to create the open scholarly commons.

-
- ¹ David W. Lewis, "The 2.5% Commitment," September 11, 2017, <http://hdl.handle.net/1805/14063>
- ² John Wenzler, "Scholarly Communication and the Dilemma of Collective Action: Why Academic Journals Cost Too Much," *College & Research Libraries* 78(2):184-185 February 2017 doi: <https://doi.org/10.5860/crl.78.2.16581>
- ³ John Wenzler, "Scholarly Communication and the Dilemma of Collective Action: Why Academic Journals Cost Too Much," *College & Research Libraries* 78(2):192 February 2017 doi: <https://doi.org/10.5860/crl.78.2.16581>
- ⁴ Andrew McAfee and Erik Brynjolfsson, *Machine Platform Crowd: Harnessing Our Digital Future*, New York, NY: W. W. Norton & Company, 2017, pages 135-136.
- ⁵ Elinor Ostrom, *Governing the Commons: The Evolution of Institutions for Collective Action*, New York, NY: Cambridge University Press, 1990, pages 210-211.
- ⁶ Elinor Ostrom, *Governing the Commons: The Evolution of Institutions for Collective Action*, New York, NY: Cambridge University Press, 1990, pages 211.
- ⁷ Elinor Ostrom, *Governing the Commons: The Evolution of Institutions for Collective Action*, New York, NY: Cambridge University Press, 1990, pages 55-56.
- ⁸ See: David W. Lewis, "The 2.5% Commitment," September 11, 20167, <http://hdl.handle.net/1805/14063> and the initiative website at: <https://scholarlycommons.net>
- ⁹ Elinor Ostrom, *Governing the Commons: The Evolution of Institutions for Collective Action*, New York, NY: Cambridge University Press, 1990, pages 88-102.
- ¹⁰ The case again for-profit involvement has been recently by Jefferson Pooley, "Scholarly Communication Shouldn't Just be Open, But Non-Profit Too," *LSE Impact Blog*, August 15, 2017, <http://blogs.lse.ac.uk/impactofsocialsciences/2017/08/15/scholarly-communications-shouldnt-just-be-open-but-non-profit-too/>
- ¹¹ Tim Wu, *The Master Switch: The Rise and Fall of Information Empires*, New York, NY: Knopf, 2010. The telegraph and telephone were monopolies and movies in the heyday of Hollywood, broadcast television, and mobile telephones were and are oligarchies.
- ¹² Paul Peters, "A Radically Open Approach to Developing Infrastructure for Open Science," *Hindawi Blog*, October 23, 2017, <https://about.hindawi.com/opinion/a-radically-open-approach-to-developing-infrastructure-for-open-science/>