

## An Introduction to Sci-Hub and its Ethical Dilemmas

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*We significantly influence or control the selection, organization, preservation, and dissemination of information. In a political system grounded in an informed citizenry, we are members of a profession explicitly committed to intellectual freedom and the freedom of access to information. We have a special obligation to ensure the free flow of information and ideas to present and future generations.*

*Code of Ethics of the American Library Association*  
(2008)

### Introduction

The ALA *Code of Ethics*, explicitly tells librarians that “We have a special obligation to ensure the free flow of information and ideas.” At face value, this statement seems unambiguous and perhaps even noble (note that we have a *special* obligation). The code goes on to stipulate that “We respect intellectual property rights and advocate balance between the interests of information users and rights holders.” At the same time, we are also expected “not [to] advance private interests at the expense of library users, colleagues, or our employing institutions” (ALA, 2008). The rapid rise of “shadow libraries,” and, in particular, the academic article-sharing website, Sci-Hub, throw the proverbial wrench into this finely tuned system of ethics. Shadow libraries are unsanctioned, free, web-based collections of both in and out of copyright materials. Ethical dilemmas arise when a choice must be made between multiple options that each compromise ethics in some manner. The question of whether librarians should teach Sci-Hub presents an ethical dilemma that reaches to the core of modern librarianship.

Avoidance of the Sci-Hub issue appears to be the strategy of many librarians since that option seemingly conflicts the least with our professional ethics. When avoidance as a strategy is examined against multiple professional codes of ethics that librarians subscribe to, then its ethical superiority as a choice becomes murkier. The question of whether or not to teach Sci-Hub has become less and less avoidable over time. An analysis of Sci-Hub usage by Richard Van-Noorden published in *Nature*, found that there were 75 million article downloads worldwide (2016). Increasingly, students and faculty have heard of Sci-Hub and many of them are using it (Bohannon, 2016). Since avoidance is losing its viability as an option, this article explores the ethical implications

of teaching (or refusing to teach) Sci-Hub. It should be noted that within this article, teaching is construed broadly—encompassing both library instruction in the classroom and one-on-one reference transactions with students and faculty. When faced with an ethical dilemma, one should strive for a deep understanding of all the possible choices and how those choices interface with all relevant codes of ethics. Understanding how Sci-Hub works and how it came to be is the first step in this process.

### The Serials Crisis

To understand why Sci-Hub is thriving, it is necessary to look back to the 1990s when electronic books and journals were in their infancy. Digital resources held the promise of significant cost savings for libraries since they incurred no printing costs, required no paper, and did not need to be mailed to the recipient. Unfortunately, for the majority of journals, these savings never materialized. To the contrary, journal subscription costs increased far more rapidly than the inflation rate. Shu et al. note that, “The average price of U.S. academic journals has increased more than eightfold between 1984 and 2010, while the U.S. national inflation rate was only 110 percent during that same 25-year period” (2018, p. 786). To put this in perspective, in 2014, the Harvard University Library reported that their two most expensive journals were *Journal of Comparative Neurology* (\$28,787 per year) and *Science* (\$26,675 per year) (Eger & Scheufen, 2018, p. 25).

Historically, most scholarly journals were published by university presses and academic societies. However, over the last thirty years, for-profit publishers have created near-monopolies in some areas of academic journal publishing. Today, five major commercial publishers—Elsevier, Springer, Wiley, Taylor & Francis, and Sage—account for more than half the market for scholarly journals (Eger & Scheufen, 2018, p. 2). In the sciences, they have acquired an even greater market share. The ascendancy of for-profit publishers has led to what has been called the “serials crisis.” In short, the serials crisis refers to the reality that it has been impossible for academic libraries to maintain previous levels of access to academic journals without making deep cuts elsewhere. Concurrent with the serials crisis, has been a period of unprecedented profits for some publishers. For example, in 2018, RELX, the parent company of Elsevier had revenues of \$9.8 billion and an extraordinary 31.3% profit margin—similar to Apple and Microsoft. Profits derived from

Elsevier account for about 40% of this total, or \$3.9 billion dollars (“Elsevier Fact Sheet”). These exorbitant journal costs undermine core principles of research and scholarship since knowledge needs to be shared in order to continue advancing. For this reason, 15,000 scientists signed on to an Elsevier boycott in 2012 (Weingart & Taubert, 2017, p. 17). In 2019, the UC system (which includes Berkeley, LA, and Davis) canceled their nearly \$11 million Elsevier subscription. The UC system was seeking concessions from Elsevier for open access publishing as well as overall cost reductions (“UC and Elsevier: Overview”). All of this, and more, has led to the ongoing serials crisis that opened the door for Sci-Hub and other web-based shadow libraries.

### Sci-Hub Background

To devoted open access advocates Sci-Hub’s founding has taken on almost mystical characteristics. Russian neuroscience graduate student, Aleksandra Elbakyan, was struggling to locate the research articles she needed to complete her degree. Initially she resorted to clumsy workarounds such as asking friends at better-funded universities for articles or posting requests to Twitter using the hashtag: #icanhazPDF. Sci-Hub was created in 2011, after Elbakyan utilized her coding skills to begin building a free, worldwide repository of scholarly articles. Unlike previous free digital libraries such as Archive.org, which relied heavily on out-of-copyright materials and open access journals, Sci-Hub asked users to voluntarily share their credentials (e.g., the User ID and password that an academic uses to log-in remotely to their university’s network) to access private virtual private networks (VPNs). These VPN’s quickly gave Sci-Hub access to most of the world’s digitized scholarly articles. The system works like this: whenever an article request comes in through the simple search box on the Sci-Hub homepage, the system checks the request against the existing archive of articles. As of 2019, Sci-Hub claims this archive consists of 74 million scholarly articles. If a given article is not contained in this massive database, the system uses credentials that other users have provided to locate the article. Once located, this article is copied into the main archive (Graber-Stiehl, 2016).

An analysis published by Daniel Himmelstein found that as of 2017, the Sci-Hub database contained an estimated 68.9% of all scholarly articles. This same study found that Sci-Hub contained 96.9% of all articles from the publisher Elsevier, consisting of some 13 million articles (2018). This large-scale piracy quickly caught the attention of major academic publishers whose business models were threatened by Sci-Hub. In 2015, Elsevier sued Sci-Hub and Elbakyan (*Elsevier et al. v. Sci-Hub et*

*al.*). The non-U.S.-based Sci-Hub did not defend the lawsuit, and in 2017 the court awarded Elsevier \$15 million in damages and an injunction against Sci-Hub (Schiermeier, 2017). This lawsuit was the first of many against Sci-Hub around the world, but since there are no company assets or stable location for Sci-Hub it has been largely unaffected by these lawsuits. Various injunctions have caused Sci-Hub, in response, to change its website domain name many times over the years. If search engines are unable to locate the current URLs for Sci-Hub, the *Wikipedia* entry for Sci-Hub usually has the updated URL or check the website: [www.whereisscihub.now.sh](http://www.whereisscihub.now.sh).

Clearly Sci-Hub has succeeded in providing quick and free access to scholarly articles (and some popular press articles) to many researchers in developing countries and to students from universities that struggle to maintain expensive subscriptions to top science journals. Even in developed countries and at well-funded universities, the convenience of Sci-Hub seems to be a major factor for those who use the website. Writing in *Science*, researcher John Bohannon analyzed data provided by Sci-Hub and found that over a six-month period in 2015 and 2016, 28 million articles were downloaded from Sci-Hub. Of these, top users by country were 4.4 million from China, 3.4 million from India, and 2.6 million from Iran. At the time the United States was the fifth largest downloader (Bohannon, 2016). Ease of access certainly accounts for many of the articles requested in the United States—rather than waiting on an interlibrary loan or document delivery request, students (particularly, those at the graduate level), faculty, and other researchers turn to Sci-Hub. Georgetown University librarian Meg Oakley did a simple ease of use comparison between the Georgetown library and Sci-Hub. When retrieving an article owned by her library it took six clicks and twenty-four seconds for an experienced researcher to locate an article; Sci-Hub took only two clicks and five seconds. When analyzing ease of getting articles not owned by the library the scales tipped heavily in Sci-Hub’s favor (Oakley, 2016). Thus, with breadth of articles and ease-of-use, Sci-Hub is a major disruptor in the way things have always been done in scholarly publishing and in libraries. Before being put on the spot, librarians need to fully consider the ethical implications of teaching (or not teaching) Sci-Hub.

### Sci-Hub Contrasted with Relevant Ethical Codes

Librarians adhere to several professional (in addition to personal) codes of ethics. What parts of these professional codes might shed some light on the ethical dilemma of teaching Sci-Hub? The United Nations “Universal

Declaration of Human Rights” was written in 1948 and has directly, or indirectly, influenced many later codes of ethics. For the purposes of this analysis, Article 19 is the most relevant: “Everyone has the right to freedom of opinion and expression; this right includes freedom to hold opinions without interference and to seek, receive and impart information and ideas through any media and regardless of frontiers” (“Universal Declaration of Human Rights”). There are no issues with freedom of speech regarding Sci-Hub; to the contrary it allows “speech” (in the form of articles) to be widely shared. The interesting portion of Article 19 is the right “to seek, receive and impart information and ideas through any media regardless of frontiers.” Although it may not be what the authors of the Universal Declaration of Human Rights had in mind, the Sci-Hub model has certainly disregarded frontiers in order to open up information sharing.

The International Federation of Library Associations’ (IFLA) “Code of Ethics for Librarians and other Information Workers” explicitly cites the “Universal Declaration of Human Rights” as a foundational document. Since it is written specifically for librarians, the IFLA Code of Ethics provides a more nuanced framework for analyzing the ethical dilemmas surrounding Sci-Hub. The most relevant part of this code is section four which relates to open access and intellectual property. The code calls for “...support for the principles of open access, open source, and open licenses” (IFLA, 2012). At this point, it is important to reiterate that while Sci-Hub does contain legitimate open access content, it also contains a great deal of all rights reserved copyrighted material obtained through illegal means. Sci-Hub’s success presents an unprecedented challenge to traditional scholarly publishing models and forces the open access question in new and urgent ways.

Dilemmas are, by their nature, not clear-cut or easily resolvable. Using true open access content presents no ethical problems for libraries and information consumers. Librarians have always respected and protected the intellectual property rights of authors. To this end, the IFLA code specifies that “Librarians and other information workers are partners of authors, publishers and other creators of copyright protected works. Librarians and other information workers recognise [*sic*] the intellectual property right of authors and other creators and will seek to ensure that their rights are respected” (IFLA). If one applies this section of the IFLA code to the question of whether to teach Sci-Hub, the answer is an unequivocal “no.” Pirated papers shared on Sci-Hub circumvent the paywalls and pay-per-article fees that scholarly publishers rely upon to continue producing new content.

This tension between rights holders and unfettered access to scholarly information also plays out in the American Library Association’s “Code of Ethics.” The epigraph and introduction to this article point out some of the most relevant sections of this particular code. In addition to those sections, it is worthwhile to note that the ALA Code of Ethics begins by quoting from the ALA *Intellectual Freedom Manual*: Intellectual freedom can exist only where...society makes an equal commitment to the right of unrestricted access to information and ideas regardless of the communication medium used, the content of work, and the viewpoints of both the author and the receiver of information” (Office for Intellectual Freedom, 2009). For all its’ problems, Sci-Hub does provide “unrestricted access to information and ideas” to anyone with an internet connection. Of course, copyright and intellectual property rights again muddy the waters. ALA has expanded upon the section of the code of ethics that refers to copyright with additional interpretations. These interpretations include the following: “When the balance between rights holders and information users’ needs to be restored, library workers should engage with rights holders and legislators to advocate on behalf of their users and users’ rights” (ALA, 2019). Much of U.S. copyright law predates the internet. Sci-Hubs shows us that balance does indeed need to be restored, but in whose favor? Which rights holders do libraries need to advocate for? Individual authors, certainly, but is it ethical for libraries to continue protecting the rights of highly profitable and increasingly monopolistic scholarly publishers? Within this dilemma does any middle ground still exist?

## Conclusion

Sci-Hub is not going away, regardless of how many additional lawsuits are filed. Sci-Hub’s underlying database of articles has now been copied multiple times and can easily be re-launched under different names and different URL’s. As many have pointed out, Sci-Hub is disrupting scholarly publishing in much the same way that the peer-to-peer music sharing site, Napster, disrupted the music industry. It took some time, but today, in place of Napster, the music industry now has *reasonably* priced music subscription services such as Spotify, Amazon Music, and Pandora. It is possible that a reasonably priced alternative to Sci-Hub, perhaps with value-added features, could make Sci-Hub and other shadow libraries obsolete. In recent years, many scholarly publishers have begun setting fees to cover production costs while making the final product open access. Large-scale adoption of this publishing model would be one way to eventually resolve this ethical dilemma.

To return to the question of whether to teach Sci-Hub, a close read of our professional codes of ethics is a good starting point. You won't find any easy answers, but these codes will help you to weigh the relative merits of teaching Sci-Hub. If you are still looking for some middle ground in this dilemma, it is certainly possible to teach Sci-Hub without advocating for or against it. Problem-based learning is an effective, student-centered pedagogy. Introducing students to the ethical problems of using Sci-Hub can easily segue to deeper conversations about intellectual property and equitable access to information.

### Suggested Additional Readings

*Shadow Libraries: Access to Knowledge in Global Higher Education.* Joe Karaganis. Cambridge: The MIT Press, 2018.

"Sci-Hub, a Challenge for Academic and Research Libraries." Llarina González-Solar and Viviana Fernández-Marcial. *El Profesional de La Información*, vol. 28, no. 1, Jan. 2019, pp. 1–12.

"Who's Downloading Pirated Papers? Everyone." John Bohannon. *Science*: Vol. 352, Issue 6285, Apr. 29, 2016, pp. 508-512.

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<https://osc.universityofcalifornia.edu/open-access-at-uc/publisher-negotiations/uc-and-elsevier/>

United Nations. "Universal Declaration of Human Rights." <https://www.un.org/en/universal-declaration-human-rights/>

Van-Noorden, Richard. "Alexandra Elbakyan: Paper Pirate." *Nature*, v. 540, n. 7634.

Weingart, Peter and Niels Taubert. *The Future of Scholarly Publishing: Open Access and the Economics of Digitization*. African Books Collective, 2017.

(Interview...Continued from page 11)

- DiAngelo, R. & Dyson, M. E. (2018). *White Fragility*. Boston: Beacon Press.

This book kicked my butt, which is good, as I think that is what it was trying to do. As a white person who didn't think of myself as a racist, this book was pretty eye opening to the ways I benefit from white privilege, but also the ways I perpetrate it by not actively trying to disrupt it. White supremacy is so ingrained in society that I found myself arguing with the ideas presented in the book quite

a lot, only to have an epiphany a day or two later. I do believe that we (white Americans) need to start understanding how we perpetuate white supremacy, and how we can work to disrupt it, and... keep at it, and keep at it, and keep at it. It all makes a difference. I really thank these authors for creating such a brave and challenging and wonderful book!