

Does Sci-Hub's Pirated Papers Mean the End of Subscription Journals?

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Elsevier is a giant in the [academic publishing](#) industry. In 2010, the company made just over £74M in profits. So why is a giant like Elsevier [battling it out in court](#) with guerilla websites like Sci-Hub and LibGen? For starters, it's important to understand what makes scientific publishing so profitable. Publishers like Elsevier accept submissions of work already done by scientists. These undergo a strict peer-review process conducted by scientists, who work voluntarily. Only a fraction of these submissions is published and Elsevier sells the published materials to universities, libraries, and other institutions.

The business model of scientific publishers is so lucrative that a [2005 Deutsche Bank report](#) called it a "triple-pay" system. The profits only multiply as closed access journals like JSTOR curate their collections even further, creating an edge against the competition. In certain cases, the competition comes from open access websites like Sci-Hub, which are built on copyright infringement and academic piracy.

Sci-Hub's Business Model

Pirate websites like Sci-Hub are undermining the business model of academic publishers with its own model. Sci-Hub's business model is hard to pinpoint. Presently, all that is known is that Alexandra Elbakyan, a Kazakhstani, built Sci-Hub because [she believes in radical open access](#). The site operates from Russia, but nothing is known as

about its host, its servers, and its domains. A [recent manuscript](#) written by Himmelstein et al. reveals the extent of Sci-Hub's problematic engagement with the academic publishing industry. Himmelstein and colleagues found that Sci-Hub's database [contains 85.2% of all articles](#) published in closed access journals. Unsurprisingly, Sci-Hub's coverage of Elsevier is at 97.3%. Sci-Hub is a threat to the scientific publishing community because it is essentially a hacker and a pirate. A closer look at the extent of Sci-Hub's coverage will reveal the extent of its piracy.

The Problem with Sci-Hub

Himmelstein and colleagues revealed that Sci-Hub offers 56,246,220 articles. This equates to 68.9% of all journal articles from active and inactive journals. Coverage by article type was surprising: Sci-Hub covered 77.8% of journal articles, 79.7% of proceedings, and 14.2% of books. Peer-reviewed scientific articles are available on the site for researchers, or anyone, to download and use. Coverage by year varies, with most years since 1850 having an annual coverage between 60-80%. However, Sci-Hub's coverage for the year 2010 and beyond dwindled, in part because users had to submit a request for articles to be downloaded onto Sci-Hub's servers.

Another striking finding is that coverage was significantly higher for closed rather than open access journals (85.2% vs. 49.1%). Accordingly, highly cited journals were more likely to be covered by Sci-Hub. In order to access an article, a user has to make a request on Sci-Hub. Himmelstein and colleagues found that 99.3% of all these requests were fulfilled. Nearly 100% of all requests for journal articles were fulfilled. Sci-Hub also accepts donations through Paypal, QiQi, WebMoney, Yandex, and bitcoins. Himmelstein et al. estimated the current price of bitcoins donated to Sci-Hub at \$175,000.

It's clear, however, that Sci-Hub is not a business. Elbakyan said that as a student, she found the [fees for accessing closed publications](#) as "just insane." She vies for open access. Sci-Hub was born after she teamed up with other academics on the internet. However, publishers like Elsevier and journals such as the American Chemical Society (ACS) [have filed lawsuits](#) against Elbakyan because of piracy, hacking, and copyright infringement.

Corrupting Academic Publishing: What Gives?

Even if Sci-Hub fancies itself as "white-hat" hackers, it is still a hindrance to the [real meaning of science and knowledge](#). For one, copyrights exist for a reason, and that is to deter intellectual property theft. Sci-Hub is stealing from closed access publishers, in effect, because it bypasses paywalls. Secondly, the academic publishing community does not look kindly on research pirates, and for good reason. Scientific publications invest a lot of time, money, and effort into curating the articles that they publish. The sole aim of this is to ensure only research articles that are accurate, timely, and methodologically-sound are published. Third, curating scientific articles keeps the scientific community up-to-to-date, relevant, and informed of verified knowledge.

The issue with Sci-Hub is especially relevant today because it lies at the cusp between open access and closed access content. For the past couple of years, the academic publishing community has been engaged in a debate with researchers about open access. Sci-Hub highlights this debate. It is unlikely that the debate will be resolved soon unless a new internet protocol is formulated that can somehow satisfy the needs of both publishers and academics. For now, academic publishers need to be cautious and vigilant. After all, they could be educating the next generation of Sci-Hub creators.

Cite this article

Enago Academy, Does Sci-Hub's Pirated Papers Mean the End of Subscription Journals?. Enago Academy. 2017/08/09. <https://www.enago.com/academy/does-sci-hubs-pirated-papers-mean-the-end-of-subscription-journals/>