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## Busting the open access myth

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## Expert opinion

# Busting the open access myth

MICHELLE PIROTTA

Open access has been touted as the future of scientific publishing, claiming benefits such as wider readership and, crucially, significantly higher citation rates. However, research carried out by Phil Davis at Cornell University suggests that the manner of publication may have very little to do with citations. He discusses his latest research (1).

**Research Trends (RT):** Your methodology is pretty unique for doing citation analysis. How did you decide on a randomized controlled trial?

Phil Davis (PD): Previous studies that measured the citation advantage were all based on observational methodologies. Essentially, researchers counted citations to open-access articles and compared them to subscription-access articles. This is a very weak methodology, as it ignores factors other than access that lead to a citation. It also ignores the direction of causality.

The only way to adequately control for confounding explanations and to rule out the possibility of reverse directionality was to set up a proper scientific trial. By randomizing which articles were given the open-access "treatment" we could effectively control for other possible causes and focus entirely on the effect of access on readership and citations. This methodology makes our study much more rigorous than other observational studies that were done in the past.

**RT:** How did you get publishers to participate in your study?

PD: It was much easier than I expected! I focused on recruiting scientific societies, since I knew they had an interest in the outcome of the study. Ultimately, their participation depended on trust: they trusted that I would conduct a rigorous, scientific study and that I was going to be fair and objective in reporting the results. All but one publisher gave me access to their online publishing system so that I could manipulate the access conditions without their involvement, thus minimizing potential publisher influence and bias. Every publisher gave me full access to their statistical reporting systems. This says a lot about the integrity of these people and their dedication to the scientific process.

**RT:** You found evidence that open access increases readership but not citations. What does this mean?

PD: A large open access "citation advantage" would suggest that the subscription model is doing a very poor job of disseminating information to the research community. The fact that we

were unable to detect a citation difference suggests that the subscription model is operating efficiently, at least for authors. Yet, the research community is not the only group that reads the scientific literature. We were able to document a large increase in full-text article downloads and a smaller, but significant, increase in PDF downloads and unique visitors to the journal websites. This suggests that open-access publishing may reach a wider readership community, although this may not translate into more citations.



Phil Davis

**RT:** Who are these additional readers of the scientific literature?

PD: It is difficult to say from our data. We know that they are accessing the literature from outside subscriber IP addresses. But we don't know who they are, nor do we know their intention. They could be people like my dad – who had triple bypass heart surgery – typing a search query into Google and landing on an article published by the American Heart Association. They could be teachers, students, physicians or journalists, or just interested people trying to learn from the primary literature. The research field is wide open on answering this question.

**RT:** Why is measuring a citation difference so important in making the case for open access?

PD: Most scientists view citations as a form of reward, and thus an incentive, for where and how they publish. The potential of getting a 50–250% return in expected citations by publishing in an open-access journal or by making your articles freely available from an institutional archive has been used repeatedly as an argument to change the behavior of scientists. There are many other good reasons for making one's results widely available – a citation advantage, however, does not appear to be one of them.

**RT:** You take issue with the phrase "open access". Why?

PD: "Open access" assumes a dissemination model in which information only flows from the publisher to the reader. It's a model that completely ignores the high degree of sharing of articles that takes place within informal networks of authors, readers and libraries. I'm very privileged to belong to an institution with such rich access to the literature, and yet I still depend on my peers for copies of research articles and manuscripts. Secondly, "open access" implies a right to information; I much prefer "free access", which implies a privilege.

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**RT: Some have criticized you for reporting too early on your study. What is your response?**

PD: Our first article, reporting initial results within the first year after publication (1) was indeed published early in the study. We felt confident that the main results wouldn't change over time, and they haven't. After two years, we are yet to detect a difference in the citations to the open-access articles compared to the control articles. Remember that other studies had reported huge differences after very short periods of time, some within the first few months after publication. I was confident that if we didn't see a difference within the first year, we were unlikely to see a difference in the future. I'm glad we made the decision to publish early. Similar findings from other journals in the sciences, medicine, social sciences and humanities will be coming out in the next few years.

**RT: The scholarly publishing field is changing very rapidly. How relevant will your study be, in say, five years?**

PD: I imagine that the main results of our study will largely be moot in another five years. The information landscape is changing very rapidly right now, with new granting and institutional policies and new publishing business models. Bibliometrics is a very powerful tool, although it requires theory from other disciplines to give it meaning. This is why my professors have pushed me to read into the history of science, economics, communication, law and sociology. When this study runs its course, I hope to be ready for the next big question.

**Reference:**

(1) Davis, P. (2008) 'Open access publishing, article downloads, and citations: randomised controlled trial'. *BMJ* 2008;337:a568; doi:10.1136/bmj.a568