

THE OPEN-ACCESS MODEL
OF JOURNAL PUBLISHING

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THE OPEN-ACCESS MODEL OF JOURNAL PUBLISHING

By Shinobu Kitayama
 APS President

Over the past few decades, there has been a trend toward open access (OA) as a new academic publication model. Most journals in psychology, especially those published by APS and the American Psychological Association, have not adopted this model. However, there may come a time when that changes. The newest APS journal, *Advances in Methods and Practices in Psychological Science* (AMPPS), will turn OA in 2021. I want to take this opportunity to discuss what OA is, how it works, and what it might entail.

The more I think about OA, the more intrigued I am by its many facets. Some facets pertain to the nature of the collective human activity we call “science.” Some raise the question of what it is about OA that motivates people to publish research. And some others dive straight into the heart of fairness and equity concerns.

What Is Open Access?

OA is a relatively new, nontraditional model of academic publication. The idea is democratic. It embodies a moral commitment to making knowledge available to everyone. Thus, the content of OA journals is available free of charge to anyone who wants to read and use it. This open availability is probably the most significant departure from traditional journal models, which

require readers to subscribe to access content.

Early proponents of OA include Mahatma Gandhi, who famously attached a copyright blurb, “No Rights Reserved,” to a British translation of one of his books. However, the OA movement gained traction only after the Internet became widely available. In effect, OA is an effort to make academic papers available for free in cyberspace. Therefore, it is a stepchild of the Internet age, born out of a democratic impulse to make knowledge accessible to anyone who wants it.

There is no dispute that the idea of OA is supreme. It’s like a dream. However, many dreams are pulled back by economic reality, and OA is not immune to this reality check. The publication of scholarly articles entails substantial costs, including editorial staff, peer-review and typesetting technology, and the systems needed to archive articles for future generations. Traditionally, these costs have been passed on to subscribers, including university libraries.

The idealistic prospect of OA makes it easy to forget that someone must still cover the cost. In the early years of OA, especially in Western Europe, the OA model was heavily subsidized by public institutions and private foundations. OA journals without such generous funding must look for other means to recover costs. That is where the article processing charge (APC) comes in. It is sometimes called the publication fee, and it is charged to authors.

A cursory review shows that APCs are most common in the natural and biological sciences (Kozak & Hartley, 2013). However, many psychological scientists publish their work in OA journals, and many of those journals charge sizable APCs (for some examples, see Springer Nature, 2020). Therefore, although OA is great from the perspective of readers, it poses some dilemmas for research scientists.



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Two Niches

OA journals appear to have filled two niches left open by traditional, subscription-based journals. Let me try to clarify what those niches are by describing two prototypes for journals. For a lack of good descriptors, I'll call them "cutting-edge" and "nontraditional." Like all prototypes, they are Platonic ideals—abstractions that never exist in pure forms. In other words, almost all journals fall somewhere in between. Moreover, neither prototype is inherently better than the other. Both address issues surrounding traditional journals.

Cutting-edge research. An increasing number of journals cater to "cutting-edge" research. Typical in this

A New Era for Open Access

In an online panel recorded in August, Shinobu Kitayama had an in-depth conversation about the open access model with four researchers from the United Kingdom, Japan, Australia, and the United States. View it with this article at psychologicalscience.org/observer.

group are OA journals bearing the name "Nature," with *Nature Communications* the most relevant to psychological scientists. The parent journal, *Nature*, is subscription-based and available in paper copies. *Nature Communications* is online only and fully OA.

Nature carries tremendous prestige, which its OA journals have inherited, helping them to attract a large number of submissions from all areas of science—medicine, engineering, chemistry, physics, and, of course, psychology, among others. Their editors process submissions with efficiency, turning down most of them (> 90%; see, e.g., Journals Friend, 2018).

The research that survives this highly selective, competitive review process will be cited frequently, which is why journals bearing the "Nature" brand, including *Nature Communications*, carry impact factors in the vicinity of 12. Impact factors reflect a journal's average number of citations per paper, per year. (The impact factor is controversial and could be considered a social construction, but it has very real consequences; see Merton, 1995, and "Time to Remodel the Journal Impact Factor," 2016.) Although 12 is much lower than the impact factor for *Nature* (> 40), it is still *very* high in comparison to the impact factors for empirical psychology journals. (The highest of those, 6.34, belongs to the *Journal of Personality and Social Psychology*, which has a rejection rate around 85%. As an editor of this journal, I wonder what this huge gap in impact factor might mean. A full response could require another column. But one plausible answer would point to the prestige factor under discussion.) Both *Nature Communications* and *Science Advances* (the OA sibling of *Science*, another highly prestigious subscription-based journal) charge an APC of around \$5,000.

From a researcher's point of view, it is important to get your work published as quickly as possible in the best possible outlet—as reflected, among other things, by its impact factor. Your career is built on having your findings published in reputable outlets. The speed of publication is particularly crucial in the competitive world of cutting-edge science, where the value of a new finding diminishes rapidly if its publication is delayed. Top researchers who have enough grant funding may not find APCs to be as big of a problem as they are to other researchers. And publishing in a high-impact journal could help secure more funding, which would pay for more APCs in the future.

I have two reactions to this system. First, I cannot help but think of sociologist Max Weber's (1930) description of the capitalist system as an "iron cage" in which people's lives are defined by the drive to make money. Top scientists are on an eternal treadmill, striving to get grant funding only to publish more—not unlike rats in a Skinner box (a model system of capitalism).

Second, however, I find that the entrepreneurial spirit inherent in this system resonates with me. Productivity in research becomes an integral part of your identity. Competition with similarly minded scientists excites you. Often, that competition can lead to collaboration, and when it does, it is an affirming experience. You devote your life to science even more, hoping that someday you will make discoveries, build groundbreaking theories, and perhaps change the world for the better. That spirit of innovation, expanding influence, and competitive collaboration with fellow scientists can cultivate passion, motivation, and meaning in life. And OA journals linked to scientific prestige have become part and parcel of that dynamic.

Nontraditional research. The second prototype is represented by the *Frontiers* family of OA journals, which publish on a wider range of topics, often challenging the traditional frameworks of various fields. A major criterion for publication here is not novelty, as in the first category, but methodological soundness. I think this model represents a great experiment, and there is a lot of merit to it. Consider that many journals, especially OA journals that fit the first pro-

prototype, emphasize novelty and impact. That orientation may prioritize new and surprising findings at the expense of solid methodology. (In *Nature* and *Science*, for example, detailed methods are relegated to supplementary information, which very few are likely to read.) Thus, OA journals that publish all methodologically sound work may serve as a significant antidote.

As one *Frontiers* editor noted in 2016, the *Frontiers* journals “publish (almost) everything” (Phillips, 2016). Indeed, the average rejection rate across all *Frontiers* journals in that year was quite low: only 25% (*Frontiers Science News*, 2016). The impact factor of *Frontiers in Psychology* (2.32) is understandably lower than that of the *Nature* and *Science* OA siblings, but it is respectable (*Frontiers in Psychology*, 2017). Not surprisingly, *Frontiers* journals have flourished. The APC for a full-length article in *Frontiers in Psychology* is \$2,950 (Frontiers, n.d.).

I have mixed feelings about the emphasis on methodological soundness as opposed to impact. Let me be clear: Research claiming a surprising finding with crappy methods is terrible. As I discussed in my last column, many scholars have worked hard on journal reform over the past 10 years. But I do not believe that impeccable methods alone can create research that significantly contributes to scientific knowledge. Like yin and yang, the criteria pushed by the two prototypes are different but complementary: Together, new, exciting ideas and rigorous, innovative methods produce excellent research. Conversely, ignoring one could compromise our science.

The real value of the second group of OA journals may be that they make room for excellent research that does not fit traditional journals, which often have very conservative review criteria. In particular, these OA journals recruit a wider range of editors and reviewers across many countries. For example, in 2019, 20% of editors and 34% of authors at *Frontiers* journals were in Asia, South America, or Africa (Frontiers,

2019). Moreover, *Frontiers* papers are downloaded in high frequencies in many developing countries.

Why does this matter? Science is based on objective, verifiable data—but there is nothing objective about reporting, interpreting, and “packaging” the data in articles. The endeavor is deeply cultural, and it tends to favor scholars with Western cultural backgrounds and Western training. This fact presents a major hurdle in internationalizing psychological science. Here, *Frontiers* and other OA journals (e.g., *PLOS ONE*) have played a significant role.

Pros and Cons

I can see why OA journals have flourished. The most important reason, in my mind, is that OA journals have a vested interest in publishing articles. Some of the highest-impact journals (those that fit the first prototype) have very high rejection rates, but they are very interested in publishing the “highest-impact” papers possible. From a business point of view, that is the only way for them to survive. The same consideration applies to journals that fit the second prototype. In their case, the rejection rate is usually not as high, which probably makes their bottom line easier to meet through APCs.

Compared with either prototype, subscription-based journals do not have the same degree of motivation to publish papers. Such journals are reliant on subscriptions rather than submissions. In the OA system, there is a blatantly clear bottom line. The admonition to “publish or perish” is now being extended to OA journals.

These characteristics of OA journals are not necessarily bad for researchers. As long as the researchers pay the price (i.e., the APC), they get what they want, whether that is publication in a higher-impact journal, a journal with a lower rejection rate, or (for those outside of North America and Western Europe) a journal that crosses cultural boundaries.

One huge disadvantage of the OA system is that it favors the rich and privileged. It is easy to publish your work if you are well funded. For researchers who are not, including those in developing countries, the fees may be impossibly high. As the field works to diversify its researchers and research topics, many OA journals have opted to offer full or partial waivers of APCs. However, if journals fully meet that need by granting waivers to students, junior researchers, and scholars from developing countries, then they will have to set their official APC at an even higher rate to offset the expense. The situation is analogous to the skyrocketing tuition at many American universities. Like those universities, the OA community will have to grapple with balancing social idealism and financial reality. ➡

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I am privileged in many ways: I am an active researcher at one of top research universities in North America. But I am frightened by the thought that many journals in my field might turn OA in the future. That might not happen, but if it did, many researchers might find it very challenging to maintain their labs. How many researchers could afford paying \$3,000 to \$5,000 for every publication, especially if their labs are large, with many students and postdocs—all of them seeking to publish as many papers as possible every year?

Final Thoughts

In this column, I have shared my reflections on OA—an emerging business model of journal publishing. I believe that OA has clear advantages for many researchers who are not well served by traditional journals. At the same time, a significant change in funding must take place to yield a financially sustainable, long-term blueprint before OA can be endorsed as a sensible option for all the researchers, teachers, and graduate students in the APS community. APS is testing the waters with *AMPPS*, its first foray into the OA world. In addition, hybrid models will give us experience with OA that will help guide the evolution of our journals in ways that make sense financially while providing maximum opportunities to publish and access a wide variety of research articles.

This column only scratches the surface of the complex issues surrounding OA. In all likelihood, I missed other issues and considerations. For example, I did not discuss library budgets—a major component of subscription-based journals' financial viability. Nor did I discuss institutional mandates of OA by funding agencies, which so far have mostly been limited to countries in the European Union. I therefore want to close this column with an invitation to share your thoughts on this issue. **Please comment on this article online** (psychologicalscience.org/observer/open-access) **or via email** (apsobserver@psychologicalscience.org). •

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QUOTE OF NOTE

“While the state of our union remains uncertain, there is hope, and there are answers yet to be discovered. Reinvigorating our science and engineering capabilities can help our nation address the crisis we face today, while better preparing our nation for the future.”

—U.S. Rep. **John Yarmuth** (D-KY), at a July 8, 2020, Congressional hearing on the federal role in research and development