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Opening Up: Credibility Multipliers: Simple Yet Effective Tactics for Practicing Open Science Principles

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Before diving into the main topic for this installment of *Opening Up*, we'd like to point out how some important advances and lessons in open science have been motivated by the devastating crisis of the coronavirus pandemic. Since the beginning of the year, research to understand the coronavirus and the disease of COVID-19 has been conducted in earnest, with over 7,000 papers produced in the past 3 months (*The Economist*, 2020), across a wide range of disciplines (e.g., virology, epidemiology, healthcare). Considering how slow and steady the scientific publishing process tends to be (ranging from a couple of weeks to over a year), what do we make of this vast output? What lessons might we take away in thinking further about open science?

First, note that a large volume of this research has been made publicly available in the form of **preprints**—manuscript drafts that have not yet undergone peer review—that are made available via online archives (e.g., bioArxiv and medArxiv are key repositories for this research; PsyArxiv is a similar repository for psychological research). Preprints allow scholars to share their work more rapidly and widely compared to journals, helping researchers get quick and wide-ranging feedback on their work outside the more formal peer review process. Thus, this opens up the potential for scholarly work as a whole to advance more rapidly. The word *potential* is key here. Submissions, particularly to bioArxiv and medArxiv, may be given cursory checks to weed out nonscientific work (e.g., opinion pieces), but the quality of the scientific value is expected (hoped, in fact) to be heavily, appropriately, and quickly examined and critiqued by the scholarly community. For instance, a paper falsely suggested that the coronavirus was created in a lab, a message that was quickly picked up by the press but was nearly equally quickly dismantled by the scholarly community, who pointed out genetic evidence and animal research that strongly supported more natural causes. Another preprint, shared as of this writing via news outlets and discussed particularly on *The Daily Show with Trevor Noah* (May 21, 2020-Taraji P. Henson), suggested that marijuana may have coronavirus-fighting benefits. Turns out this preprint was supported by a CBD company. Thus, the speed at which preprints are produced for scientific, media, and public consumption carries both real benefits and serious drawbacks. However, press representation of scientific work has always been a problem, even in traditional publishing, so there needs to be a continued examination of the tradeoffs of providing large volumes of scientific work that have not been fully vetted.

As you might have guessed by now, this leads us to **preprints** as one of the "simple yet effective" tactics we wish to highlight for opening up I-O psychology research.[1] *The Economist* surmised that the practice of posting preprints will only become even more widespread, and, thus, we should become more active participants in the preprint community, getting in the fray of open science as it were, so that we can connect with other disciplines and help to manage how preprints can best serve our discipline. As a re-