How Open Science is Helping Researchers Succeed

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In academic research, researchers are meant to share information in an open manner in order to foster a more scholarly environment. Open science promotes collaborations and enables analyses to be taken to the next level in order to further scrutinize the data. However, access to such information is often limited. The problem is that most academic literature is blocked by paywalls that many people cannot overcome because of the prohibitive costs of academic journals. Ultimately, these paywalls restrict researchers from getting full access to research information.

When researchers are unable to access information, learning is obstructed, innovation slows and scientific progress is hampered from reaching its full potential. Researchers know that making their work open is important, but this is not something that they freely do. Openly sharing their work is not second nature because many researchers are lead to believe, through their training, that if they are open with their work they will not be successful. This thought process is now being recognized as outdated and there is a new era of thought that everything in academia should be open, including open access to literature, open educational resources, open data, and open science. However, the practice of open science is not widespread at this time and some researchers wonder how such a change would affect their career.

Addressing Concerns Regarding Open Science

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Recently, a group of researchers from various universities and organizations in the U.S. addressed the concerns that are raised when open science is discussed and suggest that the benefits of open practices outweigh the potential costs. These authors took a researcher-centric approach and outlined the benefits of open research practices. They suggest that open practices give researchers the opportunity for more citations, media attention, potential collaborators, job opportunities, and funding opportunities. In addition, they also discussed the common myths about open research and offered advice on how to practice open science within the existing framework of academic evaluations and incentives. Here we provide the highlights of this discussion.

Open Science Publishing Benefits

Publishing in open access journals is associated with more citations causing other authors to cite more papers because they do not have to pay to read them. In addition, open publications get more media coverage. Sharing articles on social media and mainstream media outlets helps researchers get noticed, and this can only be done with open publications. Contrary to what some might believe, the peer review process for open access publications is quite rigorous and is now becoming transparent such that the review is published along with the paper, enabling the reader to really see what went into getting the paper published.

Open Science Funding Benefits

In academia, funding is essential to career success and development. Recently, open research awards have been created by several funding agencies. In fact, funding agencies are actually mandating open sharing of research. Thus, researchers who are already practicing open science are at an advantage.

Open Science Benefits Data Reproducibility

By submitting data and research materials to independent repositories, the content of your research is preserved and accessible for the future. This is particularly beneficial when researchers have to respond to requests for data or materials. In addition, when researchers release their data, software, and materials there is clear documentation of the key products of the research, thus increasing the reproducibility of the findings by other researchers. Ultimately, when researchers share data and materials they value transparency and have confidence in their own research.

Open Science Career Advancement Benefits

Success in research requires collaborations, but, often, it is difficult to identify and connect with the appropriate collaborators. Practicing open science makes it easier for researchers to connect with one another because it increases the discoverability and visibility of their work, which facilitates easy access to novel data and software resources. Together, all of these provide new opportunities to interact with other researchers.

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Shifting Thoughts about Open Science

Traditionally, discussions about open science center around the apprehension associated with this practice, but now researchers are being encouraged to explore the benefits associated with open science as well. As more researchers begin to share their work, they will experience the benefits becoming more comfortable sharing and willing to try out these new open practices. By recognizing and supporting the steps made towards the utilization of open science, researchers will likely cause a gradual culture change from closed to open research. In fact, it has been said that students and early career researchers will spearhead such a movement. The key is to train researchers early in their careers. Graduate programs are beginning to incorporate open science and modern scientific computing practices into their existing curriculum. Students are also learning about publishing practices, such as proper citation, author rights, and open access publishing options in Methods courses. In fact, such training should be integrated into the student education and training via the regular curricular and workshop activities so that it does not burden the already busy students.

Recent evidence that the open sharing of articles, code, and data is beneficial for researchers has been demonstrated and is shown to be very strong. Every year more studies evaluate the open citation advantages and more funding agencies are announcing policies encouraging, requiring or specifically financing open research. In addition, more tools are available to make the sharing process easier, quicker, and more cost-effective. Altogether, these prove that open science is becoming more appealing and the benefits are outweighing the fears that once existed.

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