

Why opening up science & encouraging communication is key to scientific progress

The theme of World Science Day this year — 'Open Science, Leaving No One Behind' — talks giving society greater access to research.

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Bengaluru: To increase people's engagement with science that affects everyday life, UNESCO designated 10 November as the World Science Day for Peace and Development, with this year focussing on the concept of 'open science'.

Besides emphasising on how science impacts society, the day is also meant to highlight the role scientists play in helping citizens understand the planet.

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According to the UNESCO, the **objectives of the day** are to promote scientific solidarity, encourage the use of science to draw attention to the challenges faced in science.

Each year, there is a theme that accompanies the annual day to draw attention to 'Open Science, Leaving No One Behind'.



Open science, much like open access and open data, refers to giving society access to research. The UN says, “In spite of the progress made in recent years, we are still witnessing great disparities across and within different regions and different countries when it comes to accessing science, technology and innovation (STI) and enjoying their benefits.”

Today, opening up science is the need of the hour. As the internet unites both citizens and researchers from across the world, any barrier to accessing information is a hurdle in the way of scientific progress.

Ensuring science has open access enables more chances of international and interdisciplinary collaboration, both of which are in high demand today due to the urgency required to mitigate the ongoing climate crisis.

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History of scientific publishing

Before scientific journals became a thing, scientists of yore disseminated their findings by encoding them cryptically so that only other scientists could understand them. Renowned figures like Galileo Galilei and Isaac Newton **did so**, primarily because their lives were at stake as all kinds of science went against the Church.

Needless to say, this was not a very conducive methodology for further discoveries. They were not spread quickly enough and because it was so secretive, plagiarism and **making claims on scientific findings** were rampant practices. Claims were important because science survived through patronage.

But all that changed in the 17th century. In 1665, the Royal Society of England established the very first scientific and academic journal called *Philosophical Transactions of the Royal Society*. By the end of the century, there were 29 more. By 1800, there were over 1,000 journals.

Science evolved to slowly include communicating about it to the common people. This is yet another tool that furthers open access. A very efficient tool is popular science journalism, especially popular science writing. The very first journal dedicated to popularising science was eponymously named *Popular Science*.

Today, thanks to a mix of all of the above, there is a constant flow of scientific communication a part of the daily lives of scientists – and a much larger number of scientific studies have been published.

However, most studies are published in for-profit, commercial journals, which are often conducted often by funding through tax-payers' money.



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Many open science journals already exist such as BMC Medicine, Royal Society Open Science, Scientific Reports, Science Advances and Nature Communications, among others. The European Open Science Cloud (EOSC) is attempting to enable a fully open science ecosystem by federating research ecosystems, infrastructure, data and tools used by over a million researchers in the EU.

Going forward, open access to science will require better legal and regulatory frameworks that are conducive to enabling more collaboration and faster dissemination of research.

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