Description

The Research Life Cycle

When considering the future of academic publishing, a long list of reeling issues will come into the picture. Significant changes in technology, arrival of open access journals, growth of databases, arrival of data aggregators, increasing number of retractions, and rising cases of academic fraud are some of them.

The above list would seem like a logical checklist to tackle in the near future, but to do justice to the dynamic environment of academic publishing, we should look at the entire research life cycle.

- ### Rising Costs

  with tuition costs rising and budgetary resources falling, publishers are facing the economic reality of a declining average spend.

- ### Research Topics

  with an increased dependence on non-profit foundation or corporate research dollars, the independence of researchers in choosing their own study topic is being squeezed. This will inevitably transfer to a power struggle with journals that have traditionally influenced the direction of research by what they accept for publication.

- ### Replication Studies

  the rising rate of retractions combined with a perceived lack of interest in publishing replication studies does a huge disservice to the readership of academic research journals. In the absence of such validation, the number of articles in need of retraction is probably much higher than reported. This represents a direct threat to research integrity and needs to be addressed with

greater transparency of retractions and more space for replication studies.

- **Noblesse Oblige**

  if research journals rise or fall on their perceived prestige, there is a need to curate that prestige by taking prompt action on notifications of irreproducibility. Original research authors are allowed to ignore such notices and remain in print, in spite of clear and well-publicized questions about the validity of their data.

Availability vs. Accessibility

The availability of research data has increased on a global scale. As journals have begun to collaborate with data aggregators to produce vast repositories of data, the options for researchers have almost reached the point of being a deluge of data. However, availability is of limited value if you can't or don't know how to leverage all the potential that such vast amounts of data can hold. Data mining algorithms are struggling to keep up with the terabytes of data to be searched, leaving researchers drowning in data, and unless those algorithms are refined and enough specialists are trained to assist researchers in using them, the situation will only get worse.

Peer Review

The peer review process appears to be under more pressure than it has ever been. Rejected papers have always been blamed on poor peer review rather than acknowledging poor authorship. However, with the current calls for greater transparency, greater oversight, and even a total abolition of the process, the future for peer review looks anything but stable. Retractions inevitably cast doubt on the peer review process, as does a notification of irreproducibility on a study that was accepted for publication – what did the reviewers miss?

Dismantling a process that isn't working is a logical response, but that leads us to assume that there will be some element of re-building. The arrival of open access and sites such as *F1000 Research* that does only a cursory review and allows formal reviews and revision iterations to occur in public, seems to be pointing in the direction of a replacement of peer review, but it's still too soon to tell.

Open Access

Conventional way of scientific publishing is to submit an article and then process it to publish in the journal. If accepted, you sign over the copyright to the publisher.

Open Access publishing is a model where the copyright remains with authors, who pay the journal to publish their articles which are then freely available for audience.

Open access has a few variants. Gold open access is the model where the paper is freely available on the journal's website. There is also a Green option where you do not pay for open access but you are allowed to archive a version of your paper.

A New Path to Integrity

The last decade appears to have caught many academic publishers by surprise. A rise in the number of alternative ways to access research, combined with falling confidence in the research integrity of much of the work published in many traditional journals has produced a seismic shift in the industry. Unless there is a prompt and effective response to these changes, the industry as a whole may be left behind.

Category

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