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Predatory Journals Pose a Threat to the Dissemination of Science

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What is the Threat?

Predatory journals are those journals with very low standards that publish almost any article at a cost to the author and in the shortest time with superficial refereeing or without going through the standard peer-review process. However, the principal aim of these journals is to earn money [8], with an (almost complete) absence of promoting science! When a predatory journal publishes an article without a proper academic review, it may mislead researchers on aspects of methodology and epistemology; see [1]. In spite of claiming to adhere to strict peer review and publishing ethics, predatory publishers do not have the necessary transparency and honesty. In fact, they have caused some serious damage to the development of global knowledge by blending true and false. Publishers of these journals have assumed a false premise, namely, finding the truth is the task of the people who are using the papers! Therefore, everyone should be cautious in referring to articles in these journals.

In the history of science, and particularly in the development of mathematics, the credibility and reliability of results are supported by an anonymous peer review system. This process is able to revisit the results and proofs and depurate bugs. In the peer review system, the anonymous contribution by referees requires generous collaboration from their side, a task that demands time to write a fair report checking all details. So, how can the whole process remain trustworthy if the reviewer only has a few days to prepare a report?

What if the reliability of the published results were called into question? We could no longer prove new theorems without confirming, over and over again, each of the references and tools used. In humankind's evolution, a reliance on written sources saves time and allows subsequent generations to access knowledge from the past.

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How May Predatory Journals Deceive Us?

Predatory journals sometimes use innovative methods to lure less-experienced researchers to publish their findings. For example, by inviting them to join the editorial board of the journals, asking them to be guest editors of a special issue, or promising a scientific review in the shortest possible time.

In addition, with more recent strategies, predatory publishers are also combined with fake or predatory research forums and platforms, meetings, and conferences that offer the possibility of being a keynote speaker or a session organizer in a location attractive to tourists, where the scientific subject does not really matter.

Despite the abundance of information and alerts, scientists might face new risks caused by the behaviour of predatory journals when combined with new technological tools. For example, quite soon it will be hard for editors and, maybe, even for experts, to distinguish between human-written and artificial-intelligence-written papers. This is already happening in several disciplines in science, art, literature, etc., at least up to a medium level [6, 9].

What is the Problem with Scientometrics?

The articles published by predatory journals are very often on fringe topics. These articles are cited by the authors themselves and their close collaborators. It is true that we should not restrict the development of science by imposing monolithic thinking; diversity is always necessary for enrichment. But some studies are artificially motivated and contribute nothing new.

According to the current rate of contributions from predatory journals, quickly and possibly with some citation manipulation, these journals can achieve a misleading high-impact factor in Scopus and Web of Science. Many specialized journals in pure mathematics have appeared in the second or third quartile of the JCR list, while some predatory journals have been in the first or second quartile of this JCR ranking [10].

Some universities pay incentives for publishing in the first or second quartiles of JCR-listed journals of Web of Science to get a good ranking among other countries, but this is a waste of money when publishing in fake or predatory journals. In general, for most academic disciplines, including mathematics, there is a large number of reputed research journals where researchers can publish their strong results.

Scholars who publish in predatory journals are most probably not aware of the nature of these journals, cannot do substantial research, or need papers for getting an academic degree, promotion to a higher academic rank, or obtaining research grants; cf. [5]. Unfortunately, *“some authors turn to these outlets fully aware of their low quality; these*

scholars willingly pay to publish in predatory journals to add a line to their CVs” [7]. We should emphasize that publishing articles in predatory journals damages the professional reputation of universities and scholars who publish there. It is always better for researchers, in particular for young ones, to prioritize their credibility over publishing quickly in a journal that is not well-respected.

How Do We Recognize Predatory Journals?

What are the available tools to identify such journals? The first list of open-access predatory publishers, named Beall’s list after the first reports by the American librarian Jeffrey Beall, was blogged about in 2008. In early 2017, the blog ceased its activity following complaints and threats of legal action from a number of publishers. However, Beall’s list has been developed by others; see [2]. A new database of predatory journals is offered by the private company Cabell’s International [3]; see also [12].

It used to be a lot easier to determine whether a journal was predatory or not. However, in recent years, predatory journals have found deceitful ways to look more and more like prestigious journals. Nevertheless, there are some serious flaws in their review processes. Namely, referees are not selected by the editors from among prominent experts. Editors of these journals are mostly for show and do not play a meaningful role. The huge size of some editorial boards gives a clear idea of the weak role of these boards in the selection and review processes. Reports are generally considered selectively by these journals; which means that negative reports are ignored whereas positive ones are kept.

In mathematics, when a journal gets de-indexed (or not indexed at all) by MathSciNet or zbMATH Open, there is almost always a quality problem, and this gives a clear hint to be worried about the journal’s credibility. Fortunately, the mathematical databases of zbMATH Open and MathSciNet have stopped indexing predatory journals.

Some universities and research agencies have an alert list of fake or predatory journals. But researchers object to this list by saying that when a journal is indexed by Scopus or Web of Science and has rather a high impact factor, why does a university consider that journal invalid? Therefore, it seems necessary that Scopus and Web of Science follow the line marked by MathSciNet and zbMATH Open, and make a more serious effort to remove such journals from their databases after an accurate examination.

What Can We Do?

Universities and senior researchers should warn young scholars not to submit any paper to predatory journals, and encourage them not to review any paper for these journals nor cooperate with them as editors. Furthermore, they should not assign any value to the articles published in these journals. It is challenging to estimate how many

of these journals could be potentially reoriented to an ethical policy according to high-quality standards; the pressure from a well-informed and committed research community could produce the change. An appropriate way may be to provide a reputable list of prestigious journals or reputed publishers for young researchers.

It is essential, both for their reputation and the credibility of their field, that good researchers do not fall into the trap of these predatory publishers. Young researchers can consult senior colleagues who have substantial experience in publishing papers when choosing a journal. The data bases of MathSciNet and zbMATH Open can be also very helpful. Web pages, blogs, and serious scientific forums treat this problem in detail, providing useful tools and information for all kinds of researchers.

Doing excellent research is always a difficult task. We should spend sufficient time and energy to find an interesting problem or a challenging question, create a new idea, and obtain deep and important results with innovative proofs and impactful consequences. “Good” results of our research will be eventually published in an appropriate journal even if the referee process takes a long time. The seminal work of Per Enflo, for instance, on the important invariant subspace problem from functional analysis was under review for about 3 years in *Acta Mathematica*; see [4]. We should not waste a good idea by rushing to publish in a poor journal.

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