

Publishing research in a journal

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Abstract: Publishing research results in peer-reviewed journals is an important part of the academic process. There is both science and art involved in the entire publication process, starting from writing the manuscript, through the review process, revision, and ultimately the final acceptance. Based on the experience of the author of this article as an author, reviewer, and journal editor, information is provided on all these aspects involved in publishing a journal paper. Special tips are provided on writing manuscripts, selecting journals, and handling the review process.

1. Introduction

Knowledge has traditionally transferred via texts in the forms of books and more recently, journal papers. The transfer of knowledge is important as it serves as the basis on which more knowledge is accumulated. Scientific knowledge is often published in journals which serve as repositories of scholarly publications. The importance of publishing in journals cannot be overemphasized. It serves multiple purposes, first and foremost being the propagation of knowledge on which further knowledge can be built. Articles published in journals essentially undergo a “peer-review” process which serves as an important check against bogus claims. Then again, journal publications often satisfy the degree requirements of graduate students as well as requirements for promotion of researchers in academia. Publishing in journals is sometimes frowned upon due to some reasons such as taking up valuable time and resources that could be better utilized in activities with more benefit to society. However, the benefits of having a research work peer reviewed and presenting knowledge for the benefit of other scholars/scientists as well as society in general cannot be ignored. It would almost be selfish to not publish scientific findings when we ourselves learn from the findings of others and *stand of the shoulders of giants*.

Writing articles for scientific journals requires specific skills and the publication process itself starting from the selection of appropriate journals and the entire peer review process can at times be quite challenging, especially for young researchers taking their first steps in academic pursuit. This article will attempt to provide guidance on the issues of writing papers, selecting journals, handling review comments, and so on. The topics covered are not exhaustive, but tips are provided based on almost three decades of experience publishing in and reviewing papers for a broad range of journals as well as being on the editorial board of several journals.

2. Writing a Manuscript

This section outlines some of the points to be kept in mind when writing journal manuscripts. It will not go into all the details of how to write a manuscript; there are many textbooks available for that purpose, for example, Katz (2009) and Bonnet (2022) [1-2]. Only some salient features are discussed. Though varying with journals, papers are usually structured as follows – title, author

names and affiliations, abstract, keywords, introduction, literature review (may be integrated into the introduction), methods, results and discussion (may be separate sections), conclusions, acknowledgements, and references. Some of these sections are elaborated below. For a more detailed overview on each section, the interested reader may refer to Meo (2018) [3].

Before starting to write: To write a journal article, the first and foremost requirement is a piece of research that can be considered worthy of publication. For that, it is important to have scientifically rigorous work with some novelty; new knowledge added to the pool of existing work. To ascertain novelty, it is necessary to conduct a thorough literature review to establish the state-of-the-art. What work has already been done in the field of study? Many tools are now available to assist the literature search process; ScienceDirect, SpringerLink, GoogleScholar, etc. to name a few, that can help quickly identify journal papers using the power of the internet. Using judiciously selected keywords, journal articles can be identified very quickly. Generally, a first search may be a coarse one unless the keywords/topics are very specific. A finer search can either be done via more advanced search techniques available in the search engines or by screening of the articles identified in the coarse search by looking at the title and abstract, or even the conclusions. Looking at some recent review articles on the subject may also be a good place to start where more articles can be identified by looking at the reference list of the review articles. The shortlisted articles can then be studied in more details to understand the status of the research in the field of interest as well as to identify research gaps which can support the research questions of the current study. A clarity on this would also establish the novelty of the planned/completed research. This is very important failing which the paper may be rejected, often by the journal editors themselves before even going through the review process.

Abstract: The abstract is one of the first things readers (and reviewers) would most likely look at after reading the title of the manuscript. An abstract, summarizing the contents of the article, should thus be crisp, precise and attractive. There is often a tendency to provide a lot of introduction in the abstract to set the scene and provide a justification for the research. However, the detailed introduction should be left to the Introduction section following the abstract. A rule-of-thumb would be to introduce the importance of the topic in the abstract in 1-2 sentences. The methodology can then be introduced in 1-2 sentences. The majority

of the abstract should be dedicated to the actual results of the study with the final 1-2 sentences on key conclusions and recommendations. Though journals vary in the length of the abstract allowed, usually a good abstract should be somewhere between 150-250 words. There are a few journals that allow not more than 100 words or those that allow up to 300 words or even more.

Results and discussion: In this section, the results can be presented in the form of tables or figures. Tables are useful for presenting a large amount of information in a small space whereas figures are useful for displaying the results graphically as bar charts, pie charts, box and whisker plots, and so on. It is usually not recommended to present the same information both as tables and figures; duplication of information is not preferred by journals. Also, when discussing the results, it is useful to provide information on what the results indicate rather than just repeating in text form the information already presented in the tables and figures. The information in the text should be something that may not be directly obvious to the reader from directly looking at the tables and figures themselves. The discussion could, for example, include whether the observed results were as would be expected or were they counterintuitive? The results should, if possible, also be compared with similar studies from literature discussing the similarities and differences which could give more confidence to study results.

Conclusions: The conclusions section is somewhat similar to the abstract but with more details. Sometimes researchers may tend to write this section as a summary of the entire paper. However, many journals prefer that the conclusions section focuses on the outcomes of the study, limitations, and recommendations for further research. Key findings should be mentioned along with a brief overview of recommendations to key stakeholders and ideas for future research. As far as possible, the conclusions section should be written in a way that it can be understood without having to first read the entire manuscript. Very often, readers may go directly to the conclusions section after reading the title and abstract. They may then read the full paper should they be interested to learn more details.

Writing style: One of the important things to keep in mind is the use of good language. Researchers are often so focused on the content (which is no doubt the key issue), that they give less importance to the language in the manuscript. However, writing in clear and correct language is crucial for properly communicating the contents of the research to the intended readers as well as giving a good first impression to the reviewers/editor. A scientific paper should be written in a precise manner, using simple but clear language. Manuscripts written in poor language may very likely face a desk reject by the editor even before being sent for review. Even if they manage to slip through the editorial screening and are sent for review, reviewers may often reject them because they would not like to spend more time trying to understand something not written in a lucid manner. If the writing is very poor, it is possible that the value of the research itself may be misjudged.

Plagiarism: Paraphrasing is very important when writing journal manuscripts. There may be a temptation to directly repeat some sentences from previously published manuscripts, books, or other resources because they are very neatly phrased. However, this is not a preferred practice and should be avoided as far as possible. In very special cases, some very standard definitions for example, may be used directly with proper reference citation. But passages should not directly be copied. This practice is referred to as plagiarism and it not allowed. Many software such as Turnitin, iThenticate, etc. are available and journals use these to track plagiarism in submitted manuscripts. It may even be a good idea for the authors to use these software on their own manuscript before submission to ensure that there have not been inadvertent

instances of plagiarism. Copying text from the authors' own previous work, referred to as self-plagiarism, is also not allowed. Work done by others must be rephrased and appropriately cited following the style recommended by the journals in the Guide to Authors.

Another good practice is to create diagrams by oneself and avoid copying and pasting diagrams from reference sources. Neat and clear diagrams are easy to read for the audience and also give an overall good impression of the paper. In very special cases, publicly available graphs or figures may be used with proper citation. In such cases, the copyright rules should be carefully checked before using these.

Abbreviations: The use of abbreviations should be kept to a minimum, and as far as possible, limited to the commonly used ones in the field of study. Though convenient for the writer, abbreviations make it difficult for the reader to follow the paper especially if there are many non-standard abbreviations used. Abbreviations must be defined at the first instance of use and some journals may also require to present a list as "nomenclature" at the beginning of the article. It is not a good practice to use abbreviations in the manuscript title, abstract, and figures and tables. If abbreviations are used in the figures and tables, it would be good to define them as footnotes below the tables or as part of the figure captions even if they have already been defined before in the text. It is sometimes convenient for researchers to define scenarios with numbers, e.g. Scenario 1, 2, etc. Even though these are defined in the Methods section of the paper, if there are many scenarios, the reader may have to repeatedly go back and refer to this section because it may be difficult to remember the details of each scenario. One way around this could be to define the scenario names using some short forms which are related to the characteristics of the scenario. Especially in the abstract and conclusions, it would be good to refer to scenarios by their characteristics which can be self-explanatory.

3. The Review Process

Selecting a journal: Selecting an appropriate journal for submitting a manuscript is an important part of the publication process. A wrong selection could lead to rejection that may increase the publication time. There are several ways to consider journal selection. One may select a journal based on previous experience or having seen several related papers published in some particular journals (especially during the literature review). Another way can be by using the "journal finder" facility that is provided by many publishers. These journal finder tools are web-based and usually require the input of the manuscript title, abstract, subject area, keywords, etc. When these data are entered into the tool, a list of journals with relevance to the subject of the article are suggested along with information on journal metrics such as impact factor, days required to first decision, acceptance rate, whether the journal supports only subscription, only open access, or both formats, and so on. More information on such metrics can also be obtained by going to the journal website. After identifying a few journals from an initial short-list, it may be a good idea to check the archives of the selected journals for publications on a similar topic. It is also useful to study the scope of the journal to ensure a good fit with the manuscript. When selecting journals for submitting manuscripts, it may also help to look at the editorial board to check for familiar names of researchers who are recognized in the field. This is to avoid falling prey to predatory journals which are fraudulent publications that use an open access model with article processing fees but do not follow the rigorous quality requirements of peer review. More about such journals and how to identify them can be found in Elmore and Weston (2020) [4].

Selecting reviewers: When submitting a manuscript to a journal, most journals require the authors to suggest some potential reviewers (usually between two to five reviewers). Looking at the authors of the papers cited in the manuscript itself may be a good starting point when selecting reviewers. It is better not to select reviewers from the same institute as the authors. Some journals may not even allow reviewers from the same country as the authors or those with who the authors may have co-authored papers in the last 5 years or so. This is to reduce the possibility of conflict of interest. Journals also tend to ask if there are some researchers who the authors would not like to have as reviewers (“opposed reviewers”). Selecting reviewers from different countries might be a good practice. Also, it should be noted that the potential reviewers suggested by the authors may not necessarily be selected by the editor.

Review: A submitted manuscript may be sent to two or more reviewers for comments after a preliminary screening by the handling editor. The outcome of the review process is then summarized by the editor and communicated to the authors. The most positive, though relative rare, outcome is a direct accept. The manuscript might also receive minor comments from the reviewers in which case the revised manuscript would usually be handled by the editor without reverting back to the reviewers. In case of a decision of major revisions, the revised manuscript may most likely be sent back to the reviewers for a second check. The worst outcome would be that the submitted manuscript is rejected. In case of a revision, all comments should be carefully attended to and the manuscript revised accordingly or a rebuttal provided in case the authors do not agree with some of the reviewers’ comments. Usually between two to four weeks are provided for preparing the revision, though some extra time may be requested, if needed. It is very important to address each comment meticulously; being impatient or trying to minimize the amount

of revision may either result in the manuscript being returned for yet another round of revision or in extreme cases, it may even be rejected. A point-wise response to each review comment should be provided; the more comprehensive is the revision and response, the better is the chance of the revised manuscript being accepted without going for yet another round of revision. If a manuscript is rejected, the reasons for rejection should be considered carefully and the manuscript revised accordingly before submitting it again, either to the same journal (if journal policy allows and the authors so wish) or to another journal for consideration. It is possible that the rejected paper may go back to the same reviewer(s) when resubmitted; having considered the comments in the previous submission would be helpful. It is common for journal manuscripts to go through several iterations before publication; so one should not be disappointed if that happens. With each iteration, the journal paper usually improves so that the final product will be better than the initial one.

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