

Tutorial on Writing a Research Article

(This set of instructions has been prepared for users not able to view the streaming video version. Note that there is a corresponding YouTube video available, covering the same material. The title is the same.)

Here is the link for instructions for authors for the journal *BioResources*:

<https://bioresources.cnr.ncsu.edu/authors-and-reviewers/article-preparation/>

This brief presentation highlights some key points in the preparation of a research article. Though it was prepared for authors intending to submit their work to the journal *BioResources*, it is not intended to be limited to that journal.

As noted in the first slide, potential authors of research articles usually have at least two major goals in mind. One is to gain academic recognition. The other is to contribute to the buildup of knowledge.

Tutorial on Writing a Research Article

<https://bioresources.cnr.ncsu.edu/authors-and-reviewers/article-preparation/>

Goals:

- Gain academic recognition.**
- Contribute to knowledge in your field.**

Martin A. Hubbe
Editor
hubbe@ncsu.edu



Fig. 1.

As shown in Fig. 2, the process is supposed to start with an idea. The researcher studies what is already known in a field (using a library and other search capabilities). The idea ought to involve something novel and important. The researcher uses tools such as experimentation (e.g. involving chemical solutions in flasks), statistical analysis, and the writing of drafts. If the work is novel, carried out in a careful manner, and well presented, then after it is submitted for publication and peer-reviewed, the authors can receive the recognition that they deserve.

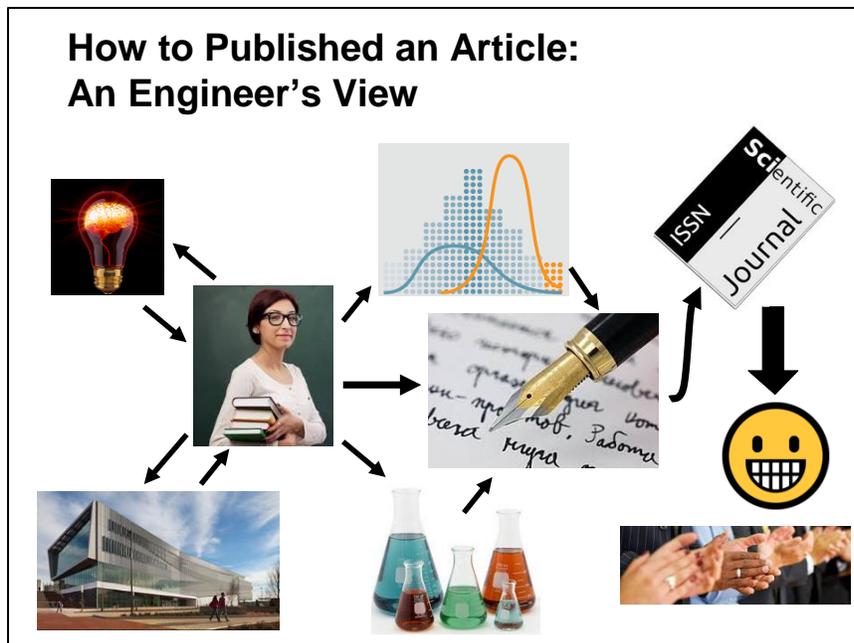


Fig. 2.

Figure 3 considers some trivial examples to illustrate the meaning of the word “novel”. A good research article ought to make readers curious about the topic. In cases where the research is very similar to certain earlier research, the authors need to make a special effort to specify how it is different in detail and why that difference is important.

It all must start with a novel idea.



Man bites dog, dog gets rabies.

A composite in which cellulose is the continuous phase and plastic is the filler

Paper coatings that are intentionally rough and weak

Formulations that lack an essential component but still perform well

Fig. 3.

Figure 4 represents the start of a typical layout for an article in *BioResources* and most other scientific journals. The big red arrow points to a very critical point in the article. Near to the end of the Introduction section, readers will expect to see a “gap statement” and a “novelty statement”. The gap statement, which often following several paragraphs describing past research related to the current work, explains what is still not known, despite the earlier studies. The novelty statement carefully specifies what has been done for the first time in the present work.

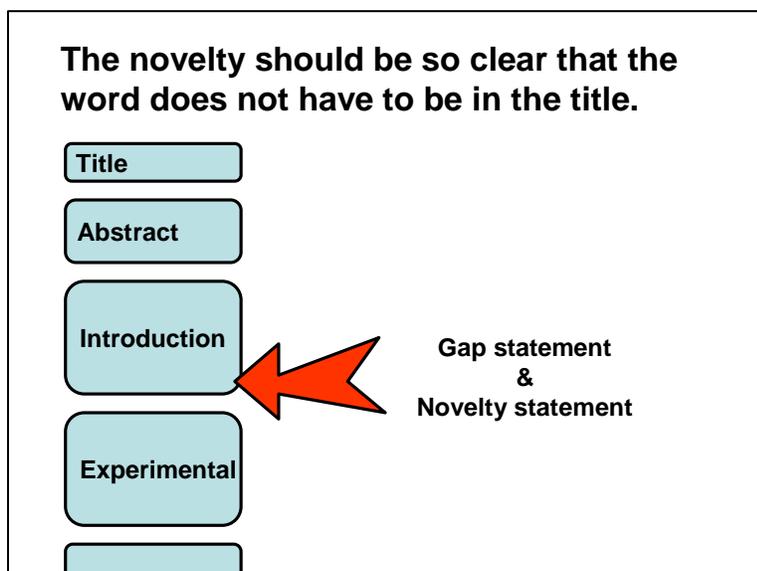


Fig. 4.

It is important to select an appropriate journal for each research article. The most important aspect of this is that the topic of the article needs to match the scope of the journal.

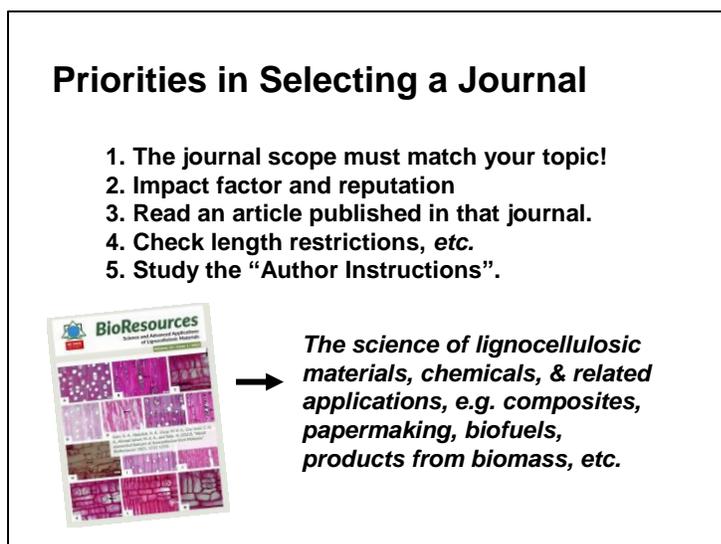


Fig. 5.

Other important aspects are the impact factor and the reputation of the journal. It is recommended to look at one or more articles published in the journal. Also check whether there are length restrictions that may be incompatible with certain kinds of articles. Also look for a set of Author instructions for each journal.

As indicated in Fig. 6, the purpose of the Introduction section of your article should be to justify your work. By explaining key points about what has been studied in a field, you can lead up to being able to write an effective gap statement. Also, you need to emphasize why the current research is important.

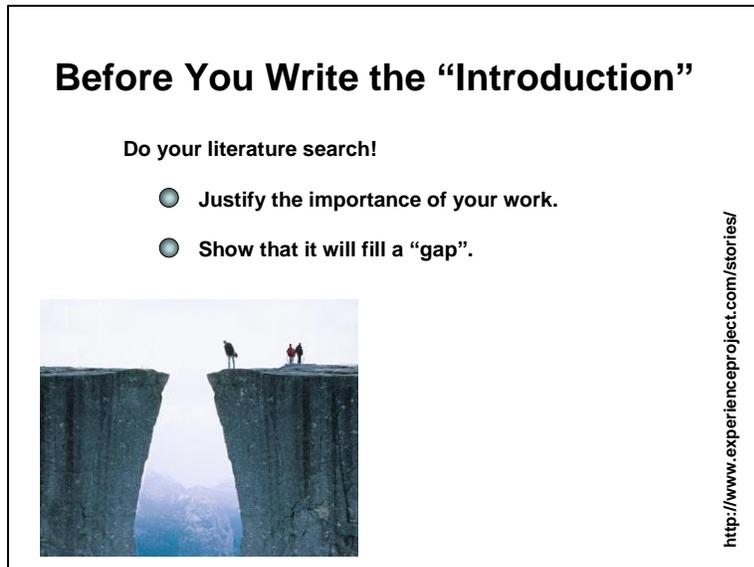


Fig. 6.

The graphics in Figures 6 and 7 are meant to remind prospective authors to think about how a good article can “tell a story”. The plot line can be quite simple. As shown in Fig. 6, there is a tension, at the beginning, because there is a gap of knowledge. Readers do not know yet whether or not that gap can be overcome.

Figure 7, with the completed bridge, represents what your article might achieve – showing how the gap can be bridged. Sometime the results of research are negative, indicating that a problem remains unresolved. Not all stories have predictable endings. But you want to be effective enough in your writing so that your readers will care about how things turned out at the end.

Show the readers that your work is achieving *this* ...



<http://gembapantarei.com/tps-benchmarking/>

Fig. 7.

Thus, as represented in Fig. 8, your story can be about an advance in some area of science and technology.

Have a “story” worth telling.



Fig. 8.

In addition to providing a good sense of purpose, a good research article also needs to carefully present evidence. Scientific readers will be expecting the authors to rely upon careful experimental methods, which incorporate appropriate usage of statistics.

Essentials of Research Worth Publishing

Novel
Impactful (makes a difference to someone)
Methods are appropriate.
Conclusions are statistically demonstrated.

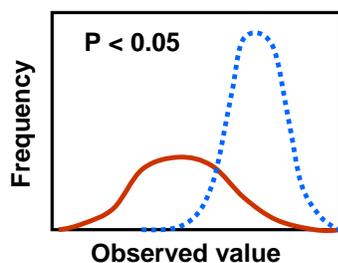


Fig. 9.

As you are working on your article, you might consider the items listed in Fig. 10. Look back at the Author instructions, if there is any doubt. Look again at a published article from the target journal. Sometimes you can learn more from a published article than from the corresponding lines of instructions for authors. Check the details of how the editors want the article to be uploaded. *BioResources* wants everything included in one MS WORD document, aiming for how it will be formatted in the final published version, but many other journals want various contents separately, or in a certain order, or double-spaced, *etc.* Most journals will ask you to fill out a copy right form. *BioResources* does not ask authors to give up their copy rights. Typically the staff of *BioResources* makes the selection of peer reviewers.

Checklist

1. Did you follow the “Instructions for Authors” with care?
2. Did you check those instructions again when you were almost finished with the submission?
3. Did you study some published articles from the same journal, regarding the format?
4. Figures and tables are sometimes (but not always) put at the back. Separate “TIF” versions of figures are often uploaded.
5. Usually there is a copyright form.
6. Often the journal wants names of suggested reviewers.

Fig. 10.

Finally, Fig. 11 lists some possible next steps. Other information is available at the website. Other streaming video items (and their corresponding PDF versions) are available. In particular, prospective authors of article for *BioResources* ought to study how to prepare an article using our TEMPLATE and also how to UPLOAD the MS WORD version of the article when it is ready.

Next Steps

Other tutorials in this set:

Using the template to prepare an article for *BioResources*

Uploading your prepared article for submission to *BioResources*

Detailed instructions for preparing tables, figures, and SEM figures for *BioResources* (Jessica Rogers)

Fig. 11.

Thank you for your attention!