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Editorial

Publishing a sound paper of environmental science and ecological technology: Some experiences and tips for young researchers

Two factors are of great significance for enhancing young researchers' international engagement: continuously improving their academic level and publishing advanced progress in scientific journals. The journals in the field of environmental science and ecological technology (ESET) are committed to improving research independency of young researchers, so as to promote excellent scientific research achievements. In this editorial, we integrate major challenges that young researchers must cope with in preparing their submissions. These challenges include choosing a proper journal, changing thinking mode, improving the manuscript's layout, and meeting basic requirements for top-tier journals like *Environmental Science and Ecotechnology*. We also share some suggestions and tips on how to prepare a manuscript, in the hope that they can help young researchers communicate efficiently with editors, reviewers, and readers. As the editors of a journal caring for young researchers of ESET [1,2], we want to see young researchers, especially non-native English speaking researchers, gain higher viability in scientific research and ability to spread their academic achievements to the world.

Guiding young researchers to publish excellent scientific articles is one of the key routes to continuously increase their international academic influence. However, as for preparing a high-impact work, it is found that many young researchers cannot suitably handle basic writing skills, because they lack proficiency in the English language and experience in studying or working in English speaking contexts. Their papers are thus not readable and often rejected even though the results in the work may well reach the standard of the targeted journal. In the field of environment, many of these "hard-to-read" manuscripts may take longer time than expected to be eventually published. This may delay students' graduation, undercut the novelty of as-prepared works, or temporize the dissemination of obtained scientific impacts. If we have to follow the "publish or perish" rule, it is urgent for young researchers educated in non-English environments to better understand the principles of academic writing and turn their thinking mode into English writing to further grasp the knowledge of writing a good academic article.

To date, reputable journals in the field of environment require more than academic English writing with correct grammar, proper wording, and high fluency. They also require a systematic understanding of the academic description logic, such as formulating a layout to tell a good story, setting a clear research purpose, clarifying the research innovation, and highlighting significant contributions towards the field of environment. It is vital for preparing a manuscript to catch the eyes of editors, reviewers, and readers. Apart from these, to avoid unexpected rejection, choosing targeted journals by considering research scope, impact factor, journal reputation, and journal format is critical before submitting a manuscript. Based on our experience of revising more than a hundred manuscripts written by young researchers in the ESET field in China, we will briefly summarize the common writing standards and accordingly provide some suggestions. Altogether, we hope this editorial can help non-English speaking young researchers find a way to improve their hard-worked manuscripts for successful publication in their targeted journals.

1. Start-up before manuscript writing

1.1. Browsing for targeted journal(s)

Many inexperienced young researchers tend to prepare their manuscripts in haste based upon their immature ideas, thus sending an "uncertain, incomplete, or unconfident" manuscript for review. Due to their limited knowledge, they have little idea about selecting a suitable targeted journal. This would largely reduce the submission efficiency due to possible major revisions even before the actual submission, which would be needed to meet the interest of readers, description style, writing format, and quality/novelty of the work in the targeted journal. Therefore, before writing the manuscript, listing a few targeted journals is important.

To date, the field of environment has been expanding, with more exciting cross-field subjects involved in this field, including (bio)energy, advanced materials, microbiology/ecology, artificial intelligence, etc. Therefore, it is difficult to say that some of the highly reputed environment-related journals, such as ES&T or *Water Research*, are really suitable for every research. To publish their work, young researchers should clearly investigate which filed they have worked in and what kind of journals are truly suitable for the work.

To achieve this, young researchers may make good use of academic search engines (e.g., Web of Science [WOS]), search for keywords in topic or title and set the timeline within the recent 3–5 years. Then, all the related published literature will be listed with detailed information (such as article type, journal name, and published date). One can summarize the journals that mostly published or cited the works of interest. This is a good way to find the targeted journals and make a shortlist of 3–5 journals based on the journal's interest, reputation, and quality of the work. Finally, one has to visit the selected journal's website to check the research scope and download its "Guide for Authors" for a detailed check.

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1.2. Telling a good story

For the targeted journals, the main story of the work must be established with the obtained data and analysis (for example, making sure of the argumentative basis, the applicable scene, and the specific scientific question). This demands attention from most young researchers and their supervisors. Noticeably, most reputed environment-related journals and their handling editors will take this seriously because a high-impact paper should be easy to read and convincing for cohort researchers in this same field. The manuscript should fill in a specific research gap and provide useful information to the readers. Therefore, a reasonably well-written story must be thought through before writing the manuscript.

2. Arrangement of the manuscript's framework

Lastly, to ensure that all the written content can fit in the main story of the work, young researchers are recommended to arrange the framework completely before writing. The framework usually involves (1) correcting and double-checking all the data and analyses for the manuscript; (2) arranging all the Figures/Tables along with the supplemental materials; (3) confirming the main description and corresponding references for each Figure/Table logically; (4) highlighting the main novelty and findings in the work and their main supporting information; and (5) designing a vivid graphical abstract to strongly support and highlight the novelty. After all these preparations, it is the right time to write the manuscript.

3. Tips for manuscript writing

Generally, a research manuscript consists of the title, abstract and keywords, introduction, materials and methods, results and discussion, and conclusions. Among them, the materials and methods section is relatively easy to prepare and should be done first, followed by introduction, results and discussion, conclusions, title, and abstract/keywords sections. The writing tips for each part are shared as follows.

3.1. Materials and methods

The main purpose of this part is to inform the readers of the "experimental materials" and "experimental methods/equipment" so that they can repeat the experiments when necessary. This part usually uses passive voice because these materials and methods have already been used before manuscript submission. More importantly, besides tense, other points should be noticed for this section, including (1) dividing the section into subsections with types of experiments, methods, or analyzing procedures; (2) marking clearly the sources of experimental equipment/materials (model, company, and country); and (3) detailing each step of newly created or improved method/procedure in the main text or supporting materials.

3.2. Introduction

Introduction is a microcosm of the whole work. It is extremely important for the manuscript. Generally, an introduction should specify not only the achievement of the work, but the recent progress and the existing bottlenecks in the field. In this case, environmental experts and even cross-field researchers can quickly grasp which field this paper falls in, why/how the authors have conducted the work, and what the specific problem is that the authors have solved. In our experience, a satisfactory introduction in a well-reputed environment-related journal should systematically guide the readers to clearly understand the authors' story from a broad perspective to a precise one and from a general direction to the specific problem.

The specific writing structure is suggested as follows. (1) Motivation: why is this topic important? The importance of the research direction should be emphasized to convince the readers that the topic is necessary. (2) Literature review: what is the progress on this topic in practical or academic sciences? The current academic progress of the topic should be given to prove its importance and necessity. (3) Knowledge gap: what is the main problem in the topic? The main technical bottleneck and research barrier of this topic should be pointed out. (4) Research question: based upon the knowledge gap, what is the specific question that needs to be solved? The specific question in the work and the corresponding solutions to solve the question should be given. (5) New findings: what are the main innovations and contributions of the work? The main findings, along with some inspired results, should be demonstrated to prove the specific contribution of the work.

Young researchers should pay attention to the tenses used in this part to avoid confusion. Generally, describing well-known facts/events demands present tense, while discussing the individual literature or presenting scientific results past tense. But for readability and clarity, more and more top journals now encourage authors to describe the results using active voice. It should be noted that relatively strong and precise words are encouraged to clearly describe the scientific problems and new findings in the introduction so as to highlight the insights provided by the manuscript.

3.3. Results and discussion

If the introduction is the microcosm of the work, the results and discussion section is the core of the manuscript. In this section, authors should display the main results, detailed analyses, and corresponding discussions to convincingly represent the new findings, and how the proposed problem/question was solved, thus providing a significant contribution to the field of environment. The results section mainly emphasizes data presentation and interpretation, while the discussion part focuses on data analysis, explanation, correlation, and how these data reflect the problem/question proposed and prove the insights obtained.

Generally, to write a satisfactory results and discussion section for a well-reputed journal, several suggestions can be considered. In the results part, the following contents should be included: (1) presenting the main results as concisely as possible; (2) summarizing the information presented in Figure/Table; (3) providing appropriate references for the obtained results; (4) providing a comparison with previous literature if needed; and (5) stating the problems or deficits in the obtained results if any. In the discussion part, several points might be included: (1) describing the significance of new findings; (2) analyzing and explaining the new understandings or insights from your results; (3) based upon the findings, developing possible solutions to the problems; and (4) describing the contribution/improvement in the work and evaluating the next steps to advance the research.

Concerning the tense for this section, we usually use past tense in passive voice to describe the obtained results, while present tense and passive voice can be used in the discussion part. For example, present tense is usually used for describing well-known facts. However, past tense or passive voice can be used for indeterminate description such as the information obtained from some literature or expected from the obtained results. Notably, as for expressing the comparison of various literature (e.g., A is in good agreement with B) and results (e.g., Figure A shows/demonstrates …), either present tense and past tense can be used according to the ritual of the targeted journals. Additionally, for summarizing the results and drawing a conclusion that are highly fitted/similar

to the fact, present tense is usually used to make a clearer and more convincing statement.

4. Conclusion

After the results and discussion, similar to the end of a story, we must make a strong statement in the conclusion section. A good conclusion section should serve two functions: (1) to simply but eloquently summarize the main results, findings, and possible solutions of the work; and (2) to provide a corresponding comment, judgment, or future perspective based on the work to better guide the readers and further the research work in the field of environment. In a word, this section should concisely summarize the whole work and try to present a bigger picture to demonstrate the significance of the work in the field.

4.1. Title

The title of the manuscript, often the first words seen by the handling editors, reviewers, and readers, should completely reflect the core innovation of the work and catch the eyes of readers. Besides, a good title cannot be too simple (not completely reflecting the insights), too specific (not attractive to cross-field readers), or too broad (not focusing on the new findings). Additionally, many highly reputed journals have word limits for titles. Therefore, over-wordy or vague descriptions in titles are not recommended. Moreover, a good title should be simple, attractive, informative, and specific, containing 12–15 words on average and implying the requirement for accuracy, depth, and innovation. Additionally, technical terms or abbreviations are usually not suggested in the title. Altogether, young researchers should pay attention to writing a concise title that can summarize the innovation, catch the attention and interests of readers, and differ from those of other similar publications.

4.2. Abstract and keywords

The abstract for an article is as much as a trailer for a movie. It can be regarded as the epitome of the main research content presented in the manuscript. Usually, editors would make a quick decision (reject or send for peer review) and evaluate the quality and importance of the work simply by glimpsing the abstract. Abstract is also important for readers to decide whether they will read/download the work. Therefore, to increase the acceptance rate and gain more work viability, young researchers should strive to make the abstract more accurate and interesting. Based on the word limit (150–250 words) in many well-reputed journals, the following are some suggestions for writing a good abstract. (1) Keep it simple and clear. Use strong and specific language to describe the highlights and importance of the work. (2) Mind word limit. A typical word limit is 150–250 words. Come as close to the word limit as possible, but do not go over it. (3) Avoid too many technical terms. Express them with accurate but easy-to-read language to better catch the eyes of even the cross-field researchers. (4) Mind tense. Use present tense to describe the findings or main contributions; Use past tense to present the completed experiment; Use future tense to predict the potential perspectives.

5. Summing-up

In this editorial, we have briefly discussed the necessity and difficulty of "how to publish a good paper in the field of environmental science and ecological technology". Some experiences and tips are shared with non-native English writers to help them with publication. Based on our experience in reviewing and revising manuscripts by inexperienced young researchers, this editorial briefly introduced the strategies for preparing quality manuscripts, including: (1) how to precisely fulfill the start-up work before writing the manuscript (i.e., selecting targeted journals, establishing the main story, and arranging the whole manuscript framework) and (2) how to suitably write a high-impact manuscript (i.e., discussing the purpose, logic, style, writing pattern, and word tense/voice of each section in the manuscript). Furthermore, several tips for each section of the manuscript are provided to increase the viability, readability, and acceptance possibility of the work. In short, we hope that the information provided in this editorial will be helpful for non-native English writers working toward a better academic manuscript in the field of environment that can be successfully published in well-reputed journals. And by helping them publish, we aim to further support young researchers in gaining higher scientific viability and spreading their academic achievements from desk to the world.

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