

Five Key Attributes of an Effective Title

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The title is the gateway to your scientific article. It should be informative and concise, and should reflect the scientific content. The title gives readers the main take-away of the entire study and its key findings. While accurate and engaging scientific discussion and data presentation are critical, the title is what makes the first impression on editors, reviewers, and potential readers. Hence, it is important to take extra care when composing a title. Every word or phrase you use can make a big difference in conveying the major findings of your study. By composing an effective title, you can make your scientific research stand out among the works of your peers.

How Can You Write a Good Title? Think about the article titles that have caught your eye and encouraged you to read the article. What was it that attracted you? Also, check the list of a journal's "Most Read Articles". Highly effective titles helped capture the attention of potential readers, encouraging them to read the articles and help elevate the articles to "Most Read" status. Use the titles of popular articles as good examples to help you compose your own titles. The examples presented in this Editorial are from a recent list of "Most Read Articles" from *ACS Energy Letters* (the list is refreshed daily and is available from a link on the journal's Web page: see <https://pubs.acs.org/action/showMostReadArticles?journalCode=aelccp>).

Earlier editorials, "The Art of Writing the Title of Your Paper" by Buriak¹ and "What's in a Name" by Kamat and Schatz,² have discussed the importance of the title in a scientific paper. This Editorial focuses on five key attributes of an effective title (Figure 1). Keep in mind these attributes when composing your title:

1. **Journal Scope.** The keywords and phrases used in the title should reflect the focus of the journal. You may have the topically best article, but if it does not match the journal's focus, you will not reach the appropriate readers. The choice of words in the title indicates whether the paper is best suited for a broader or more specialized journal.

2. **Simplicity.** There are many demands on peoples' time. Potential readers may not stop to read an article with an overly long, complex/convoluted title. Keep the title as concise as possible. Simple phrases that directly reflect the research topic can bring well-deserved attention to your work. Here are two recent titles from our "Most Read" list:

Is There Anything Better than Pt for HER?

The Emergence of Halide Layered Double Perovskites

What did you notice about these titles? Short, simple titles, followed by well-focused discussions, are highly effective.

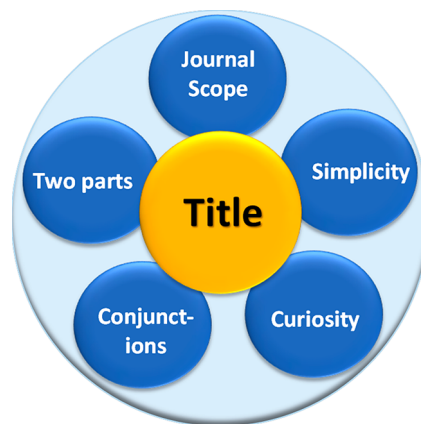


Figure 1. Five key attributes of an article title.

3. **Inquisitiveness.** Just like a compelling fictional story, titles that raise curiosity can draw readers and make them want to find the answer to an important scientific issue. Here are a couple recent examples. Note that the third title has a play on words, which can also spark the interest of potential readers.

How Machine Learning Will Revolutionize Electrochemical Sciences

How Comparable Are Sodium-Ion Batteries to Lithium-Ion Counterparts?

Potentially Confusing: Potentials in Electrochemistry

4. **Conjunctions.** We sometimes need to expand the scope of the title to provide a broader focus of the research. The use of conjunctions (e.g., "and", "or", "with", "instead", "for", "but") in the title helps to link two different aspects of the study quite effectively. For example, in the title "Two-Dimensional Dion–Jacobson Structure Perovskites for Efficient Sky-Blue Light-Emitting Diodes", the first part focuses on the material while the second part focuses on the application. The use of conjunctions in titles is quite popular and helps readers better identify the significance of the research.

Excessive use of conjunctions, however, can be counterproductive. If the title becomes too long (e.g., with three or more conjunctions), it can make it harder to identify the

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article's true focus, and consequently the reader might be less interested in reading the paper. It is no surprise that a reader will go on to the next paper in the Table of Contents if he or she has to read the title repeatedly to grasp what the article is about.

5. Breaking the Title. When two different phrases or subtopics cannot be combined through the use of a simple conjunction ("joining" words) or conjugation (variation in the form of the verb), breaking the title into two parts becomes beneficial. For example,

Perovskite Nanocrystal Heterostructures: Synthesis, Optical Properties, and Applications

Surface Chemistry and Quantum Dot Luminescence: Shell Growth, Atomistic Modification, and Beyond

Such a break in the title makes it easier to read and communicate the focus of the article. Just be careful not to overuse long and/or multiple phrases.

What to Avoid? There are certain things that you will want to avoid when creating an effective title. Avoid common words such as "Investigation", "Study", or "Demonstration" in the title. Why? They are redundant—the research you are reporting is an investigation. These words may also (inadvertently) imply that the research is a traditional research report. Similarly, adjectives such as "Novel", "Facile", and "Superior" undermine the impact of the work. It is a good idea not to include them. The use of adjectives, buzzwords, and/or superlatives simply for capturing the reader's attention is likely to be counterproductive. For example, we frequently see "Highly Efficient" or "High Efficient" in titles to describe a newly synthesized photocatalyst or electrocatalyst. The use of these two superlative phrases in recent decades has grown exponentially (Figure 2), now reaching nearly 5000 papers per

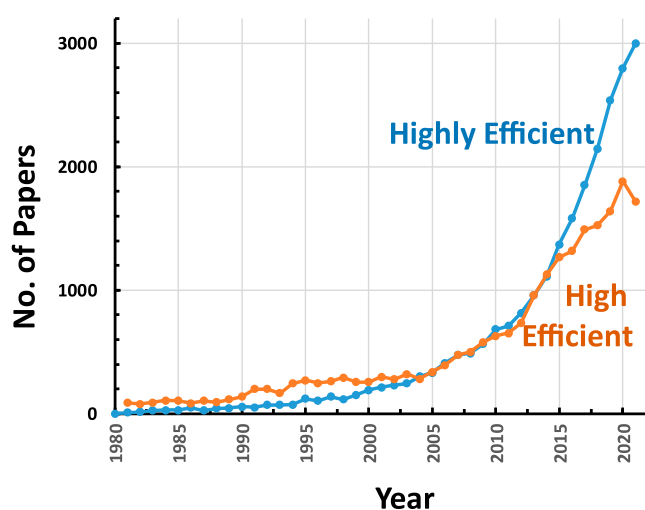


Figure 2. Number of papers containing the phrases "Highly Efficient" and "High Efficient" in the title published during 1980–2020. Source: Web of Science, April 3, 2021.

year. When one encounters such superficial superlatives, it raises several questions. On what basis is such a claim being made? What type of analysis is being made to compare the efficiency to other systems? Does the work represent a breakthrough or is it hype? Did the authors account for a sacrificial donor or applied bias when claiming the high efficiency? When the paper fails to justify the claim of "Highly Efficient", the reviewers and editors are likely to make

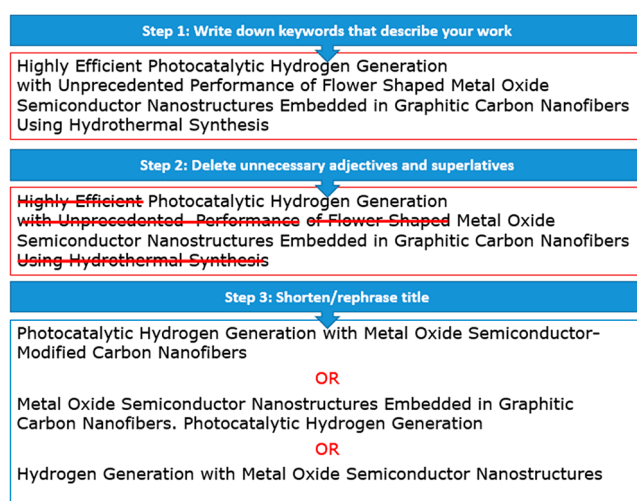


Figure 3. An illustration of composing a title. This hypothetical example shows how to condense the phrases to create effective titles (Step 3).

unfavorable recommendations. Without such ambiguous claims, the scientific advance presented in the paper might have been well-received.

Many journals, including *ACS Energy Letters*, recommend that the title consist of less than 15 words. While it can be challenging to condense a title, it is also an opportunity to provide a better focus of the work being presented. There is no need to include all the keywords in the title. A best practice is to write down the title representing the key findings and then shorten it by deleting repetitive or redundant words, unnecessary adjectives, and any phrases that might divert attention away from the study's main focus (Figure 3). Prescreening titles is very worthwhile. Compose four or five differently worded titles and seek the opinions of your group members and colleagues. Ask them what they think the article is about based solely on the title. The title favored by the majority will be the clear winner.

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<https://pubs.acs.org/10.1021/acsenerylett.1c00755>

Notes

Views expressed in this editorial are those of the author and not necessarily the views of the ACS.

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RELATED READINGS

- (1) Buriak, J. M. The Art of Writing the Title of Your Paper. *Chem. Mater.* **2014**, *26*, 3349–3350.
- (2) Kamat, P. V.; Schatz, G. C. What's in a Name? *J. Phys. Chem. Lett.* **2014**, *5*, 2879–2879.