
How to effectively write a scientific paper

On writing....



Unless otherwise noted, this work is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/), which means that it can be freely copied, redistributed and adapted as long as appropriate attribution is given.

Scientific writing – what’s the fuss about it?

- Johnson, Sören (2012). “Getting it Across. A guide to Effective Academic Writing”, Techne Press
- Luellen, W.R. (2001). “Fine-Tuning Your Writing: Advanced Writing Techniques for Scientists, Engineers, Physicians and Other Professionals”, Wise Owl Publishing Company
- Silvia, P.J (2014). “How to write a lot: a practical guide to productive academic writing”, American Psychological Association

The screenshot displays the Lib4RI search interface. The search bar contains the query "writing article english" and is set to search across "Alle NEBIS-Bibliotheken". The results are sorted by "Relevanz" and show 10 results out of 193. The first three results are:

- Writing and publishing science research papers in English : a global perspective** by Karen Englander. Multiple versions found. 2 versions of this document available.
- Writing in English : a guide for advanced learners** by Dirk Siepmann. Multiple versions found. 3 versions of this document available.
- Science research writing : for non-native speakers of English** by Hilary Glasman-Deal. Multiple versions found. 3 versions of this document available.

The interface also includes a sidebar with filters for "Meine Ergebnisse einschränken:" (Availability, Location, Online Resources) and "Typ der Ressource" (Books, Articles). A right-hand panel shows the Lib4RI logo and a list of participating libraries, including Zentralbibliothek Zürich, ETH-Bibliothek, and UZH.

Scientific writing – rules & examples

- **Tenses**

- Abstract: *present simple*, e.g., «The flow depends largely on the heterogeneous distribution of density»
- Introduction
 - Stating truths: *present simple*, e.g., «There is an increasing need for...»
 - Describing past results: *present perfect*, e.g., «In the past, geophysical methods have been used to image...»
 - Referring to the contents of your paper: *present simple*, e.g., «We present a strategy for imaging...»
- Main Body
 - Explanation of experiments: *past simple*, e.g., «We acquired seismic and ER data...The record length was...»
 - Describing figures/tables, parameters, theory, processing steps: *present simple*, e.g., «Figure 1 shows the photo of the...The acquisition parameters are summarized...A careful velocity analysis of the common midpoint gathers is...»

Scientific writing – rules & examples

- **Tenses**

- Results: *present simple*, e.g., «The velocity file obtained from the S-wave reflection data (Figure 1) shows more details compared to the MASW results (Figure 2)»
- Discussion
 - Improvement of your results & truths: *present simple*, e.g., «The importance of acquiring high-quality seismic data is paramount»
 - Referring to what has been done in the past by you or other studies: *present perfect*, e.g., «Recently, it has been found that...The empirical relationship that we have used to translate S-wave velocity field to unit weight and...»
- Conclusions: *past simple*, e.g., «We showed...We reviewed...We examined...»
- Acknowledgments: *present simple*, e.g., «We would like to thank...I am grateful to...Many thanks go to...»

Scientific writing – rules & examples

- **Tenses**
- **Punctuation & connecting words**
 - Comma
 - «We used the seismic **and** the electrical method»
 - «We performed an S-wave reflection survey, MASW, **and** ERT...»
 - «In this paper,... Finally,...»
 - «However,...» **VS** «Nevertheless,...»

«Often, the landfill has been treated as a bioreactor; **however**, there is no clear proof that the landfill will reach complete stabilization»

«We showed that the seismic method provides higher resolution in imaging the landfill body; **nevertheless**, the main structures of the subsurface are also imaged in the ER and IP results»

Scientific writing – rules & examples

- **Tenses**
- **Punctuation & connecting words**
 - Semicolon
 - Lists, e.g., «The objectives of this paper are: (a)....;(b)....;(c)...»
 - Connecting sentences, e.g., «We attributed this primarily to the presence of biogas in the pore spaces in the landfill; the presence of biogas is a fact well-known for this site»
 - Other
 - Compare x to y **OR** Compare x with y
 - Countable **VS** not countable
 - Hyphen
 - Field-specific words
 - Two words that characterize a noun and act as a single idea: e.g., «high-resolution image»
 - Reference to previous or later parts of your article: e.g., «In section 1 we mention that...We shall explain this further in section... »

Scientific writing – rules & examples

- **Tenses**
- **Punctuation & connecting words**
- **American VS British English**
 - color – colour
 - center – centre
 - aluminum – aluminium

Scientific writing – rules & examples

- **Tenses**
- **Punctuation & connecting words**
- **American VS British English**
- **Latin abbreviations**
 - e.g. – i.e. – etc.

Scientific writing – rules & examples

- **Tenses**
- **Punctuation & connecting words**
- **American VS British English**
- **Latin abbreviations**
- **Tips on sentence structure/content**
 - Active VS passive voice

«In Figure 8, **we show** typical shot gathers for sources located at 9 and 22 m»

«Typical shot gathers for sources located at 9 and 22 m **are shown** in Figure 8»

Scientific writing – rules & examples

- **Tenses**
- **Punctuation & connecting words**
- **American VS British English**
- **Latin abbreviations**
- **Tips on sentence structure/content**
 - Active VS passive voice
 - Use a variety of connecting words

Figure description	Draw attention	Opposition	Explanation
Figure 1 shows... ..., as visible in Figure This is illustrated in... As seen in Figure 1... Figure 1 depicts the...	Note Here In this paper/article/Figure	However Nevertheless On the other hand In contrast	Therefore Consequently As a result

Scientific writing – rules & examples

- **Tenses**
- **Punctuation & connecting words**
- **American VS British English**
- **Latin abbreviations**
- **Tips on sentence structure/content**
 - Active VS passive voice
 - Use a variety of connecting words
 - Don't be wordy

«In this presentation, I am going to present you tips on how to better write a scientific English article, about your scientific research»

«Today, I will present tips on improving your scientific writing»

Scientific writing – rules & examples

- **Tenses**
- **Punctuation & connecting words**
- **American VS British English**
- **Latin abbreviations**
- **Tips on sentence structure/content**
- **Corrections from your peers**
 - Organize your supervisors' corrections
 - Ask your friends to read your article
 - Don't be disappointed & be open to criticism
 - Create a “common-error list” of your own

Scientific writing – rules & examples

- **Tenses**
- **Punctuation & connecting words**
- **American VS British English**
- **Latin abbreviations**
- **Tips on sentence structure/content**
- **Corrections from your peers**
- **DO NOT plagiarize!** (<https://www.ethz.ch/students/en/studies/performance-assessments/plagiarism.html>)

Copyright protected material. Please see original material at:
<https://assignmentessayhelp.com/students-plagiarize-solutions>

Scientific writing – summary

Do's	Dont's
Study previous research in your field	Cite wrong
Include all main article parts	Ignore reviews & criticism from co-authors
Stay subjective	Exaggerate your results
Write correct English!	Plagiarize

➔ Blocken, B. (2017). *10 tips for writing a truly terrible journal article*. Elsevier.

Exercise 2

- Correct the errors and improve the following sentences:
 - Porosity not only is one of the key factors affecting preferential flow paths and so the bioreactor treatment (e.g. Staub et al., 2009, Stoltz et al., 2012) but also influences the mechanical behavior of waste (Olivier and Gourc, 2007).
 - The ER method is widely used for imaging the leachate pathways (e.g., Rosqvist et al., 2005) and for gas detection (e.g., Rosqvist et al., 2011) in landfill sites.
 - It is therefore of great practical interest to determine the density and porosity distribution that will affect the flow paths inside the landfill.
 - Figure 1 shows the high density contrasts in the landfill. Figure 2 showed the leachate recirculation process.
 - The different behavior of the P- and S-waves in fluid and gas environments is visible in Figure 1 (gray coloured areas).