ENGLISH FOR ACADEMIC RESEARCH

Adrian Wallwork

Writing an Academic Paper in English

Intermediate Level

Springer

English for Academic Research

Series Editor
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Pisa, Italy

This series aims to help non-native, English-speaking researchers communicate in English. The books are designed like manuals or user guides to help readers find relevant information quickly, and assimilate it rapidly and effectively.

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Introduction

WHO FOR

- Students of academic English (PhD students, postdocs, undergraduates)
- Teachers of English for Academic Purposes (EAP)

ENGLISH LEVEL

Minimum level: mid to upper-intermediate (CEFR level: B2), but can also be used with advanced students (CEFR levels: C1, C2).

If used as a coursebook, the class can consist of students with different levels of English. However, ideally they should all be at the same point in their university curriculum (e.g. all undergraduates or all first-year PhD students).

TYPE AND COVERAGE

Course on academic English (EAP) and/or self-study guide for students.

The book covers the typical skills to write the various sections of an academic paper for publication in a journal. However, the skills learned can be used not only by PhD students and postdocs, but also by undergraduates to write essays, reports, and theses.

STRUCTURE OF BOOK

After an introduction (Chapter 1) on the importance of communication in academia, Chapters 2–10 cover the various sections of a paper: Introduction, Methods, Results, Discussion, Conclusions, Abstract. The final chapter (Chapter 11) summarizes the entire book and gives ideas on further exercises for improving the skills learned in this book.

PRONOUNS

This book uses the generic pronouns *they* and *their*, rather than *he*/*she* and *his*/*her*.

Contents

Chapter 1
Getting started

1.1 What skills do I need to be an academic?

1. What skills do you need to be an academic today?
2. Are these skills different from those of 20–30 years ago? If so, how?
3. What skills do you already have? Which ones do you think you still need to learn? Why?
4. How important is it for you to publish papers? How will your publications impact on your career?

Some academics tend to be highly competitive, non-collaborative (i.e. not very interested in sharing results), and focused on publishing or presenting as many papers as possible (i.e. bibliometric indicators). Other aspects of academic life, such as teaching and solving the problems of society, are given low priority as they are considered as being unproductive because they don't further an academic's career.

However, there is also a trend towards more open science and more open data infrastructures. Thus it is now considered important to conduct research that

- enables others to collaborate and contribute
- encourages the free availability of data, procedures, protocols etc, so that results can be replicated, re-used and redistributed
- has a clear goal, i.e. is mission-oriented
- will benefit society in general, i.e. will not just be of interest to a small group of researchers

A. Wallwork, *Writing an Academic Paper in English*, English for Academic Research, https://doi.org/10.1007/978-3-030-95615-8_1

1.1 What skills do I need to be an academic? (cont.)

This means that you will need to learn more about how to communicate your results clearly and to collaborate with others. Such communication skills involve:

- being open-minded and flexible, with an ability to debate constructively
- developing relationships with your local community and with the community of scientists
- coordinating projects

Obviously, you still need to show excellence and rigor in your research. However, no matter how good your results are, if you cannot communicate them well (orally or written), they will have little real value. If you want a successful and rewarding career you need to learn to write well – and this book will teach you how!

If you see yourself not just as an academic, but also as someone who wants to help society by providing new solutions through your research, I think you will write more clearly.

1.2 What writing skills do I need to learn before writing my first paper?

1) Approximately how many research papers are published per year?

   a) 2,500 b) 25,000 c) 250,000 d) 2,500,000

2) Thomson Reuter's Web of Science holds 58 million items. What percentage of these papers do you think have never been cited or only cited once? [Cited = mentioned in another author's paper]

   a) 10% b) 25% c) 50% d) 75%

3) Which THREE the following kinds of mistake do you think are most likely to cause a reviewer of your paper to require 'major revision' due to 'poor English'?

   a) 5–10 grammar mistakes

   b) 5–10 vocabulary mistakes

   c) 5–10 very long complex sentences that are difficult to understand on the first reading

   d) 5–10 vague words or phrases where precision is required

   e) 3–5 ambiguous sentences (e.g. where it is not clear what *it, they, this, the former* and other pronouns refer to) and sentences where the word order does not reflect the usual subject-verb-object of English

   f) 3–5 spelling mistakes

   g) findings that are not highlighted and whose novelty is not explained

   h) lack of clarity regarding who obtained particular results: the author of the paper or the author of another paper

   i) main contribution not clear

   j) plagiarism (i.e. where you have copied word for word from a previous paper, either someone else's or even a previous paper that you or your research group has published)

   k) redundancy – words, phrases, sentences and paragraphs that add no value for the reader, but simply make the paper much longer

1.2 What writing skills do I need to learn before writing my first paper? (cont.)

1) d

2) c (Only 14,499 papers have more than 1,000 citations).

Source of statistics: https://www.nature.com/news/the-top-100-papers-1.16224.

3)

a) b) f) Grammar, vocabulary and spelling are unlikely to require a 'major' revision, only a 'minor' revision. This is because these kinds of errors do not usually prevent the reader from understanding the meaning of what you are saying. However, just one spelling mistake may be enough to catch the reviewer's eye and make him/her ask for a 'minor revision'. Remember that any kind of revision delays your paper being published.

c) d) e) h) k) These are all readability issues – they stop the reader from immediately understanding what you are saying. They may force the reader to read the sentence several times before they can understand the meaning. These, in my opinion, merit a major revision. In any case, even if the reviewer doesn't mention them, they will certainly impact on the number of readers who cite your paper – if readers can't understand what you are saying, they are unlikely to mention your paper in their paper. Redundancy is a big problem in many academic papers: e.g. using three words where one is enough. Redundancy does not stop the reader from understanding, but it might simply make them want to stop reading the paper as the mental effort and time required is too much/long. Readability issues are often mentioned by native English-speaking reviewers, who, on the other hand, are often more tolerant than non-natives regarding grammar mistakes.

g) and i) These will almost certainly lead to a request for a major review, or the paper may simply be rejected.

j) If you copy entire phrases from other papers (even your own papers) this is considered unacceptable. In fact, many journals use software to check for this issue. However, many reviewers will not even notice. My advice is to learn how to paraphrase, and also to always remember to cite the author whose sentence you are paraphrasing. A lot of plagiarism will undermine your credibility and may lead to a paper being rejected.

1.3 What do I need to think about before I start planning my paper?

1. Which is more important: a) doing you research? b) writing the paper that describes your research?
2. What areas of life do you make plans for? Choose one or two of the items below (a–e). Decide i) how long in advance you start to make plans and what these plans consist of, ii) whether it is possible to make no plans at all, and what happens if you don't make plans.
    a) buying a car, a house
    b) exams
    c) holidays
    d) job interviews
    e) weddings

1) If you don't write the paper, the world will not know about the research you've done. But simply writing a paper is not enough. The paper has to be clear and accurate, and must be easy to understand. To write such a paper, you need to plan it carefully.
2) To write a well-structured paper in good clear English, you need to have a method. If you don't have a good method you may waste a lot of time having to re-plan and re-write entire sections of your paper.

Write notes about:

- why you want to write a paper and publish your research
- what you can do to ensure that you write a good paper – what steps you need to follow
- how you will choose a journal
- the numbers of weeks/months you think it will take you to complete your paper (then consider doubling the number!)
- the advantages of writing each section i) in a separate file or one big file, ii) simultaneously or one at a time, iii) in the order in which they will actually appear in the paper (e.g. Abstract first, Conclusions last) or in order of easiness (typically the Methods is the easiest)

1.4 What questions do I need to think about before I write my first paper or do my first presentation of my research?

1. Why did you choose your specific research topic – think about what it says about: i) your interests / ambitions when you were younger, ii) how it fits your personality, iii) how it follows on from your previous studies
2. Why is your research important to you ? Why do you find it interesting?
3. Why is it important to tell other people about your research? If no one knew about it, what would happen?
4. What would happen if NO ONE did the research that are you doing? Why is it vital that researchers are carrying out studies in your specific field?
5. Do you think public money should be used to fund your research? In what ways could your research benefit society?

Before you start writing you need to have a very clear idea of:

- what your research goal was
- what your most important findings are and how you can demonstrate that they are true
- how these findings differ from, and add to, previous knowledge
- what new knowledge you are adding to science

You know implicitly what the importance of your findings are – after all, you may have been working for months and years on the project.

But the reader does not know.

You must give the reader a clear message.

1.4 What questions do I need to think about before I write my first paper or do my first presentation of my research? (cont.)

Chat about your research with a friend or member of your family. This will help you to understand what is and is not important about your methodology and findings. After you have had this chat with a few different groups of people, write some notes down about what you said under the section headings: Abstract, Introduction, Methods, Results, Discussion.

Under each heading try to think how you can highlight the importance of your research, how it adds value to previous research in your field, and think about what your results really mean.

Using these notes, give an oral presentation of your methods and results to your colleagues. These colleagues can then give you useful comments and criticisms. They may be able to give you alternative interpretations, help you understand your anomalous findings, reassure you that it is OK to include your negative findings, and bring to your attention anything that you may have missed out.

1.5 How important are the journal's *Instructions for Authors*?

Before you begin writing your paper, you need to choose the most appropriate journal to publish it in. Your professor and colleagues can help you with this decision. See 1.3 in *English for Writing Research Papers.*

When you have chosen your journal, download the *Instructions for Authors* from the journal's website page.

On the next page is an extract from the Instructions to Authors from *The American Veterinary Medical Association,* which is a semi-monthly, peer-reviewed, general veterinary medical journal owned by The American Veterinary Medical Association, and is reproduced with their kind permission.

The full document can be found here:

https://www.avma.org/sites/default/files/resources/javma-ifa.pdf

1.5 How important are the journal's *Instructions for Authors* (cont.)

The text for an Original Study begins with an introduction (which does not have a heading) and then is organized under the following headings:

- Materials and Methods
- Results
- Discussion

The **Introduction** should supply sufficient pertinent background information to allow readers to understand why the study was performed. It must include a rationale for the study, a clear statement of the purpose of the study, and the investigators' hypothesis or hypotheses. The introduction is not intended to be a thorough review of the published literature on a subject. Rather, it should be brief (often, 2 or 3 paragraphs will suffice) and should focus on identifying the specific problem the study is meant to address; describing how the study addresses the problem, differs from previous studies, or improves our understanding; and explaining what the present study was meant to do and what hypotheses it was meant to test.

The **Materials and Methods** section should describe the study design in sufficient detail to allow others to re-produce the study. A subsection detailing statistical methods used to summarize data, evaluate data distributions, and test hypotheses, along with a statement regarding the cutoff for significance used for hypothesis testing, should be provided.

Appendices and methods-related **figures** should be cited parenthetically. Products (including soft-ware), equipment, and drugs.

should be identified in the text by chemical or generic names or descriptions. For all statistical tests, authors are required to indicate whether applicable test assumptions were met

When citing **software products**, a footnote should be used to cite the software (eg, PROC GLM, SAS, version 9.2, SAS Institute Inc, Cary, NC) and a reference should be used to cite a user's guide (eg, SAS/STAT 9.2 user's guide. Cary, NC: SAS Institute Inc, 2008;page number).

The **Results** section should provide data that are clearly and simply stated without discussion or conclusions. Tables and figures should be cited parenthetically. Authors should refrain from repeating within the text data that are also presented in tables and figures and are encouraged to report the number of subjects included in any statistical calculations (eg, means, medians, and results of statistical tests), particularly if that number differs among described variables.

The **Discussion** section should focus on findings in the manuscript and should be brief (generally no more than 2,000 words), containing only discussion that is necessary for the interpretation of findings. The major findings, including whether hypotheses stated in the introduction were supported, should be given in the first paragraph. Strengths and weaknesses of the study should be acknowledged, and the discussion should end with the principal points that readers should take away. The Discussion section should concentrate mainly on what is known in non-human animals, with less emphasis on what is known in humans. It should not contain any subheadings.

1.5 How important are the journal's *Instructions for Authors* (cont.)

The *Instructions to Authors* on the previous page highlight that:

- There are very precise requirements on how to write each section.
- The Introduction may only consist of 2 or 3 paragraphs. Also the Discussion is relatively brief.
- The purpose of the Materials & Methods is to enable readers to re-produce the study.
- The Results section should provide data that are clearly and simply stated without discussion or conclusions.
- This journal has its own specific style guide that governs how, for instance, you report appendices, tables, figures, and software.

Note that the *Instructions to Authors* of other journals may differ considerably, for example with much longer Introductions and Discussions, and also a Conclusions section may be required. Ensure that you follow the instructions carefully. If you don't, you may find that your paper is initially rejected because it does not conform to the requirements of the journal.

The *Instructions for Authors* tell you how to organize and format your paper, and whether there might be more suitable forms of publication for your research e.g. a letter, a case study, book chapter.

One of the most prestigious journals in the world is the British Medical Journal (BMJ). The BMJ's Instructions for Authors contain useful advice about various topics.

1. Whether the BMJ is the right journal for your research article.

   https://www.bmj.com/about-bmj/resources-authors/bmj-right-journal-my-research-article

2. How to write a paper. You can download a pdf entitled 'BMJ Guidance for Authors'. This is a dense document, but the most important information in terms of how to write a scientific paper can be found on page 5 (what to include in the Discussion), and page 6 which tells you how to write the cover letter.

   https://www.bmj.com/about-bmj/resources-authors/article-types

1.5 How important are the journal's *Instructions for Authors* (cont.)

3. You can find details about the BMJ's house style – these are rules regarding, for example, punctuation, grammar and spelling.

   https://www.bmj.com/about-bmj/resources-authors/house-style

Below are some examples of BMJ recommendations.

a) Write in the active and use the first person (*we*) where necessary.

b) Try to avoid long sentences that have several embedded clauses.

c) Use commas before "and" and "or" in lists.

d) Sex: avoid "he" as a general pronoun. Make the nouns (and pronouns) plural, then use "they"; if that's not possible, use "he or she".

e) Minimal capitalisation. Use capitals only for names and proper nouns.

1.6 What is the best order to write the sections of my paper?

Which of the following do you think is the best order to write a paper in?

1. title – abstract – introduction etc
2. introduction, methods, results, discussion, abstract, title
3. methods, results, discussion / introduction, abstract, title

There is no standard order in which you should write the various sections of your paper. You should choose the order that suits you best. This may involve writing several sections simultaneously.

Many authors start with the Methods. This is generally the easiest section to write because this is the part that will usually be clearest in your mind. Beginning with the Methods will also give you the confidence and impetus you need to move on to the other sections of the paper.

However, it may be best to start with the Abstract as this will help you to focus on identifying the key aspects of your research. You will certainly need to revisit / rewrite the Abstract when you have finished writing the actual paper.

You might find it useful to look at the scientific study protocol that you wrote when you outlined the aims of your research at the beginning of your PhD or before you began your current project. Here you should have written out your goals very clearly, and this will help you to write your Abstract.

The hardest part for most authors is the Discussion, where you have to interpret your results and compare them with other authors' results. While you are writing the Discussion, you may find it useful to draft the Introduction, as some of the authors you mention will appear both in the Introduction and the Discussion.

A possible order for writing the various sections is thus:

Abstract (very rough draft)

Methods

Results

Discussion

Introduction

Conclusions

Abstract (final version)

Title