

Academic English: Writing a Research Article

Life Sciences and Medicine

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in collaboration with **Dominique Neyts**



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- Arts, Humanities and Law (Catherine Verguts)
- (Bioscience) Engineering (Leen De Boom and Katrien L.B. Deroey)
- Life Sciences and Medicine (Katrien L.B. Deroey, in collaboration with Dominique Neyts)
- Natural Sciences (Leen De Boom)
- Social and Behavioural Sciences (Catherine Verguts)

A teacher's manual is available upon request.

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This book aims to improve your academic writing in general and your research article writing in particular. The knowledge, skills, and insights you will acquire should make you a more confident, effective, analytical and successful writer. Although it is intended for use in class, you will find that this book can equally be used for independent study.

To maximise (continuous) learning, a variety of activities is offered in addition to the exercises.

Working with your writing

- In these tasks you apply what you have learnt to your own writing, thus reinforcing the learning process and encouraging you to write.

Independent learning tasks

- These tasks will expand your vocabulary as well as your knowledge about research articles in your specific research area and target journals.

Orientation tasks

- These form an opportunity to learn from the knowledge and experience of fellow writers and orientate you to the main issues of the unit by raising your awareness of how much you already know about these.

Accuracy focus

- These tasks focus on common language problems.

My sincere thanks to Dominique Neyts, whose pedagogical experience, common sense, and sharp eye provided invaluable input for the draft of this book; her willingness to collaborate and her good humour were also much appreciated. I am also grateful to Catherine Verguts for her hard work in coordinating the publication process for all five books and for doing so with her usual cheer, tact and

patience. Thanks also to Liselotte Van Vlem for her contribution to the Reference section.

I hope this book will boost your academic writing career, whether you are a novice or a more experienced writer.

Katrien L. B. Deroey

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EXERCISES

INTRODUCTION: YOU AS AN ACADEMIC WRITER

Orientation task

Think about these questions individually first and then discuss them in small groups.

1. What are your three main concerns about academic writing in English?
2. What have you learnt so far from (i) the academic writing you have done and from (ii) any experiences with the publication process?
3. What advice have you received so far about (i) academic writing in general and (ii) getting published specifically that you have found helpful?

ACADEMIC STYLE

1

Session aims

- Developing your awareness of what constitutes an academic writing style
 - Enabling you to write more concisely
 - Familiarising you with structuring principles at paragraph and sentence level which enhance the clarity and readability of texts

 - Language focus: Adverbial position
 - Language focus: Relative clauses

 - Accuracy focus: Easily confused words
-



The characteristics of academic writing discussed in this unit help establish an appropriate relationship with your audience, convey an acceptable attitude towards the research you are reporting, and maximise the impact of your message.

Exercise 1

The following excerpts are from popular scientific articles. What language features do they contain that you would try to avoid when writing academic research articles?

1. Several recent studies of sleep and sleeplessness show that slumber is especially important for doing clever stuff with information, such as extracting the gist of what has been learned, combining facts in interesting ways and dealing with the day's emotions.
2. Doctors routinely urge their patients to quit smoking and exercise regularly. But what if there were a blood test that could show smokers and couch potatoes the damage their lifestyle was actually wreaking on their chromosomes?
3. It turns out that people differ in how they perceive many if not all odors, and most of us have at least one scent we cannot detect at all.
4. The team wondered what would happen if the diabetic mice got a top-up of substance P, so they injected some directly into the pancreas. Astonishingly, the diabetes vanished overnight and the mice remained free of it for weeks and, in some cases, months.
5. Chronic itch is a major underreported disease. Many patients-as many as 17 percent of adults, according to one study-suffer from it, and many of them never seek medical help. They think they can scratch it away. Because it's not cancer, you don't die from it, so people don't take it seriously. But a majority of chronic itch is resistant to treatment.

1.1. Managing tone



The tone of your writing should be sufficiently formal and impersonal, as this helps

- foreground the research;
- create a credible author persona; and
- establish an appropriate relationship with the reader.



Reference section: Managing tone

A. Formality

Formality is mainly achieved by

- avoiding colloquial or spoken language;
- placing adverbs with the verb;
- not using questions (in some fields) or exclamations; and
- writing words in full (e.g. ‘cannot’) instead of using contractions (e.g. ‘can’t’).

Exercise 2

Identify and replace less formal language, making any changes necessary to keep the sentence grammatical.

1. Subjects were also encouraged to acknowledge the feeling that something was wrong, even when they could not put their finger on it.
2. As far as we know, Experiment II demonstrated for the first time that an ultra brief sleep episode provides an effective memory enhancement.
3. The toxic responses differ a lot.

4. On top of this, every population consists of many different interest groups that want to use the available space for different purposes.
5. Improved analytical approaches are necessary to meet the more and more stringent regulatory requirements for the determination of impurities in API S.
6. It looks like histidine 229 in protein L2 is essential for 50S peptidyl transferase activity.
7. After 80 years, more than three quarters evidenced major impairment. Given these findings, it is no wonder that many elderly persons complain that food lacks flavour.
8. In the current study we want to present an evaluation of the ITS2-PCR.
9. The negative outcome of metabolic engineering can be blamed on the interdependence between metabolic pathways and the fact that most aspects of metabolism are the result of several genes.
10. This interaction is made better by other sequence motifs.



Quite a few single-word verbs (e.g. ‘examine’, ‘establish’, ‘implement’) have synonyms which consist of several words (e.g. ‘look at’, ‘find out’, ‘carry out’). In academic writing, the single verbs are generally preferred over the multi-word expressions, which are more common in less formal writing and in speech. Compare:

- Informal language

The social worker **looked at** the client’s history to **find out** which interventions had previously been **carried out**.

- Academic, formal language

The social worker **examined** the client’s history to **establish** which interventions had previously been **implemented**.

Exercise 3

Choose a single-word verb from the list to replace the less formal alternatives in bold, making any changes necessary to keep the sentence grammatical.

| | | | | |
|------------|-----------|-----------|-------------|---------|
| abandon | determine | enable | initiate | propose |
| accumulate | effect | encounter | investigate | raise |
| address | elucidate | enhance | necessitate | |

1. We **looked into** the feasibility of genetically modifying their growth.
2. The tenacity with which *Candida* infects indwelling biomedical devices **makes** their removal **necessary** to **bring about** a cure.
3. It is important to **find out** the roles played by individual inhibitor genes.
4. The problem of disease resistance is being **dealt with** on many fronts.
5. In light of these complications we have **given up** this approach and now favour the use of a wider gastric conduit (6 cm diameter) with a pyloroplasty.
6. In general, four possible mechanisms are **brought up** to explain the therapeutic effect of HFS.
7. Prompted by the potential broad value of using molecular transporters to **make** drug delivery **possible** or **better**, we **started up** a program aimed at **making** the structural features of Tat49–57 that are required for its cellular entry **clear**.
8. A number of terrestrial plants **build up** large quantities of metals such as zinc, manganese, nickel, cobalt and copper in their shoots.
9. This is largely the result of the initially limited supply of paclitaxel and other obstacles which **came up** during early clinical development that restricted the drug's availability to a few investigational centers.

- Such large responses often **bring up** concerns about adverse health consequences, particularly for chronically ill individuals.



Language focus: Adverbial position

In academic writing, it is relatively common to find certain single adverbs (e.g. of time, frequency, and manner) with the verb (i.e. in “mid-position”) rather than at the beginning or end of the sentence (Swales & Feak, 2004). Note that putting such adverbs in initial position makes them appear stressed. An exception is linking adverbs (e.g. ‘however’, ‘nevertheless’), which normally appear sentence-initially.

Often these postmortem studies occur in cases where a large regional infarct is found at necropsy.

→ These postmortem studies **often** occur in cases where a large regional infarct is found at necropsy.

However, no studies exist in which sleepiness has been measured **continuously** and **objectively** during normal work.

→ However, no studies exist in which sleepiness has been **continuously** and **objectively** measured during normal work.

Exercise 4

Replace the phrases in bold with single-word adverbs and place these with the verb. Note the different mid-positions with full verbs, ‘be’ and auxiliaries.

The genetic programming module **genetically** manipulates the candidate predictors.

It was **often** necessary to boil the chloroform.

The Bland and Altman method was **originally** designed to compare different methods.

1. There is no vaccine for leishmaniasis **at present**.
2. **After this**, the embryos were cultured from day 3 to day 5 in a second serum-free medium specifically designed to support development of the blastocyst.
3. **For these reasons**, it has been proposed that ATP is a cotransmitter with noradrenaline from sympathetic perivascular nerves innervating this vessel (Sneddon and Burnstock, 1984b).
4. **It is obvious that** virus infection and viral gene expression are not sufficient factors for cancer induction.
5. **Before that**, we developed a model for denture fungal biofilm growth of *C. albicans* on strips of polymethylmethacrylate.
6. **As a rule**, insects use multicomponent pheromones.
7. **Now and then**, the body may be cystically transformed.
8. **In many cases**, the lesion is encountered in the vertebral column and in flat bones.
9. **At first**, several of the cases reported here were classified wrongly by radiologists encountering the condition for the first time.
10. The latter tends to expand under increasing pressure and disappear **in the end**.

B. Impersonality



Impersonality in research writing results from a general orientation towards facts and ideas rather than people and from a desire to (appear to) provide objective information. It is mainly reflected in

- the absence of emotive language; and
- the relatively infrequent use of personal pronouns ‘I’ (‘me’, ‘my’), ‘we’ (‘us’, ‘our’), and ‘you(r)’.

The following are three ways in which you can avoid unnecessary reference to yourself:

1) Personifying the article

This paper presents the results of a 20-year longitudinal study. (Instead of ‘We present’)

2) Avoiding unnecessary indications of personal opinions such as ‘in our opinion’, and ‘we think that’

X In our opinion this hypothesis is relevant and plausible.

✓ This hypothesis seems relevant and plausible.

3) Using the passive voice

The samples **were analysed**. (Instead of ‘We analysed the samples’.)



Reference section: Personal pronouns

Exercise 5

The excerpts below illustrate two different uses of ‘we’: in (1) ‘we’ refers to the writers (self-mention); in (2) it includes the reader (inclusive ‘we’). The use and

acceptability of ‘we’ (and ‘I’) for self-mention is subject to disciplinary variation and if used, tends to be found more in some article sections than others.

- A. How common is the use of ‘we’ for self-mention in your field?
- B. Where in research articles would you use it (if at all)?
- C. What could be a reason for using inclusive ‘we’, as illustrated in (2)?
 1. **We** compared the frequency of occurrence of each diagnosis among travelers returning from six developing regions of the world.
 2.
 - a. However, **we** can see that the peripheral neuropathy of these adults with diabetes was not severe through the measurements of the Semmes-Weinstein monofilaments and sensory nerve conduction velocities.
 - b. Whereas further replication is definitely required, **we** may nevertheless begin to ask for a theoretical explanation of this intriguing outcome.

1.2. Writing concisely



Writing concisely means conveying your message in as many words as necessary but in as few words as possible. Conciseness ensures the impact of your message is not diluted by unnecessary wordiness and also benefits reader attention. Furthermore, in a world where journal publishers are strict about the number of words used and where readers have increasingly less time, this is a crucial skill to master in order to get published and read. Here are some strategies to help you write more concisely.

- 1) Include only information that is **relevant**.
- 2) Structure your text to **avoid unnecessary repetitions** of words and information.

3) **Adapt** your language.

- a) Avoid repeated elements or replace them with pronouns.

It enables them to expand, ~~to~~ make their farm profitable and ~~to~~ attract attention.

✗ The detection limits equal or surpass **the detection limits** reported previously.

✓ The detection limits equal or surpass **those** reported previously.

- b) Avoid phrases where a word is redundant because it is already contained in the meaning of another word.

Different kinds of ~~types of~~ research can be included.

large ~~in size~~; yellow ~~in colour~~; ~~new~~ innovation; ~~advance~~ warning

- c) Omit, replace or shorten phrases containing words that do not really contribute to your message.

~~In our opinion~~, this lack of sensitivity may actually be an advantage.

Differential display was used ~~as a technique~~ to screen for differentially expressed genes.

✗ This is complicated by **the fact that** the eggs **have** the same colour as the veins in which they are laid.

✓ This is complicated by the eggs **having** the same colour as the veins in which they are laid.

✗ **With the exception of** transient relief of pain, the results in these generalized carcinoma cases were discouraging.

✓ **Except for** transient relief of pain, the results in these generalized carcinoma cases were discouraging.