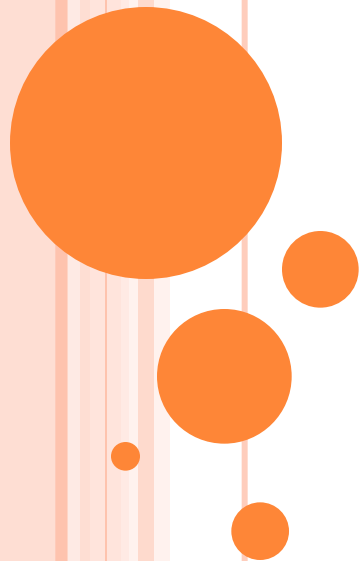


THE METHODS SECTION OF RESEARCH ARTICLES



What is the function of the methods section of research articles?

Why is this section important?

ACTIVITY (handout):

Do you agree or disagree with the statements about the methods sections? Discuss in pairs.

Write **A** (for agree) or **D** (for disagree) or **?** (for not sure).



WRITING ABOUT METHODS

- Authors tend to write it first
- sometimes called *Materials and Methods*, *Procedure*, *Methodology*, ...
- Avoidance of discussing what did not work
- Reviewers, supervisors, editors pay particular attention to this section – a good methodology leads to the expectation that the results will also be good
- In some journals, Methods sections are printed in smaller fonts and placed at the end




A “**move**” is a stretch of text with a specific communicative function (as we discussed in introduction sections).

What moves should a methods section contain?



TYPICAL MOVES IN THE METHODS SECTION

1. **OVERVIEW:** a short summary of the research method, at the beginning of the section
 2. **RESEARCH AIMS, QUESTIONS, OR HYPOTHESES:** a description of the research goals, the questions to be answered, or the hypotheses
 3. **SUBJECTS AND/OR MATERIALS:** a description of the people, the materials, the equipment, etc.
 4. **LOCATION:** a description of where the research took place and possibly why
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TYPICAL MOVES IN THE METHODS SECTION

5. **PROCEDURE:** a discussion of the process used to obtain the data that was collected
 6. **LIMITATIONS:** a focus on a shortcoming of the method, possibly accompanied by an explanation
 7. **DATA ANALYSIS:** a description of how the data was analyzed
- The moves do not necessarily appear in the order given
 - Some moves might be repeated



According to research into academic articles, there are two types of methods sections:

- **EXTENDED**
- **CONDENSED**

How do you think these two types will differ?



Read the following two extracts from methods sections of research articles.

One is extended and one is condensed.

Which is which and why?

How do they differ?



EXTENDED METHODS

- **Extended methods:** present readers with a rationale of why and how researchers did what they did.

Example:

To detect groups among the specimens and extract the variables that best diagnose the groups, we used ... Before conducting the analysis, we standardized ... To avoid weighting characters, we excluded ... Given the complexity of the problem, we wanted to ...



EXTENDED METHODS

- Useful background information is provided
- Specific steps of a procedure are described
- Justifications (e.g. *To determine this value, we...*) are included
- Cognitive and volitional verbs are used (e.g. *We believed ...*, *We intended to...*)
- Linking words and phrases are employed (e.g. time expressions such as *next*, *prior to*)



EXTENDED METHODS

Methods section will need to be more extensive if:

- The paper is aimed at a multidisciplinary audience
- The methods chosen are new or controversial
- The paper is essentially a “methods paper”



CONDENSED METHODS

- **Condensed methods:** state what the researchers did with little elaboration or justification.

Example:

The standard AOAC methods (AOAC, 1975) were used... Total sugars were determined by the method of Potter et al. (1968), ... The method of Kohler and Pattern (1967) was followed for determining...



CONDENSED METHODS

- Readers must have relevant background knowledge
- Naming procedures by citations (in fields with well-established and standardized procedures)
- The use of citations and acronyms to refer to processes
- No justifications
- Few linking phrases
- No cognitive and volitional verbs



DISCIPLINARY VARIATION IN METHODS SECTION

Condensed	Intermediate	Extended
Chemistry	Public Health	Psychology
Materials Science	Political Science	Sociology
Mycology	Systemic Botany	Education
Molecular Biology	Medical Research	Applied Linguistics
GEOGRAPHY???		



THE LANGUAGE OF METHODS SECTIONS

- Initial purpose statements:

To further test this hypothesis...

In an effort to evaluate...

In order to establish...

- Linking phrases related to time:

After the interview, the subjects were...

Prior to collecting this information, ...

On arrival on campus, the participants ...



THE LANGUAGE OF METHODS SECTIONS

- Causal and connective phrases:

Based on the feedback from the pilot study, ...

In spite of these issues, we...

In light of these unexpected findings, ...

- Cognitive and volitional verbs:

*The first approach **was considered**, and consequently **dismissed**. It was thought that this method would increase the likelihood...*



What do you think are the two most common verbs used in purpose statements at the beginning of sentences?

Take your pick:

avoid, illustrate, understand, reduce, determine, establish, test, obtain



INITIAL PURPOSE STATEMENTS

The two most common verbs are:

determine: To determine the cost...

test: To further test this hypothesis...

They are followed by:

avoid: To avoid ambiguity...

establish: To establish the link between...

illustrate: To illustrate the principle of...

obtain: To obtain additional data...

reduce: To reduce variables...

understand: To understand the concept of...



THE FUNCTION OF INITIAL PURPOSE STATEMENTS

- Initial purpose statements are on the increase
- They are used to explain and justify chosen procedures
- Additionally, they work to prevent questions and objections arising in the readers' minds.

